PIONEER

Service Manual

REPAIR & ADJUSTMENTS

ORDER NO.
ART-705-0

STEREO TURNTABLE

PL-5
PL-420

MODEL PL-5 COMES IN FOUR VERSIONS DISTINGUISHED AS FOLLOWS:

Type	Voltage	Remarks
KUT	120V only	U.S.A. model (Without cartridge)
KCT	120V only	Canada model (Without cartridge)
R	110V–120V/220V–240V (Switchable)	General export model
R/G	110V–120V/220V–240V (Switchable)	U.S. military model

MODEL PL-420(which is minor change in design from PL-5) COMES IN THREE VERSIONS DISTINGUISHED AS FOLLOWS:

Type	Voltage	Remarks
KU	120V only	U.S.A. model
RF	110V–120V/220V–240V (Switchable)	General export model (Without dust cover)
RF/G	110V–120V/220V–240V (Switchable)	U.S. military model (Without dust cover)

- This is the service manual for model PL-5/KUT. For servicing of the other types, please refer to the additional service manual.
- Ce manuel d'instruction se refère au mode de réglage, en français.
- Este manual de servicio trata del método de ajuste escrito en español.
- For the circuit and mechanism descriptions, please refer to the supplement of model PL-7 service manual (ART-768).

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
U.S. PIONEER ELECTRONICS CORPORATION 85 Oxford Drive, Moonachie, New Jersey 07074, U.S.A.
PIONEER ELECTRONIC (EUROPE) N.V. Luithagen-Haven 9, 2030 Antwerp, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia

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1. SPECIFICATIONS

Motor and Turntable

Drive System . . . . . Direct-drive
Motor . . . . . DC servo motor
Turntable Platter . . . . . 310mm diam. aluminum alloy die-cast
Speeds . . . . . 33-1/3 and 45rpm
Wow and Flutter . . . . . Less than 0.025% (WRMS)
Signal-to-Noise Ratio . . . . . More than 78dB (DIN-B)
(with Pioneer cartridge model PC-3MC)

Tonearm

Type . . . . . Static-balance type, Straight pipe arm
Effective Arm Length. 221mm
Overhang 15.5mm
Usable Cartridge Weight . . . . . 3g (min.) to 8g (max.)

Subfunctions

Full auto mechanism, Anti-skating force control, Stylus pressure direct-readout counterweight, Cueing device, Strobe light, Free stop hinges

Miscellaneous

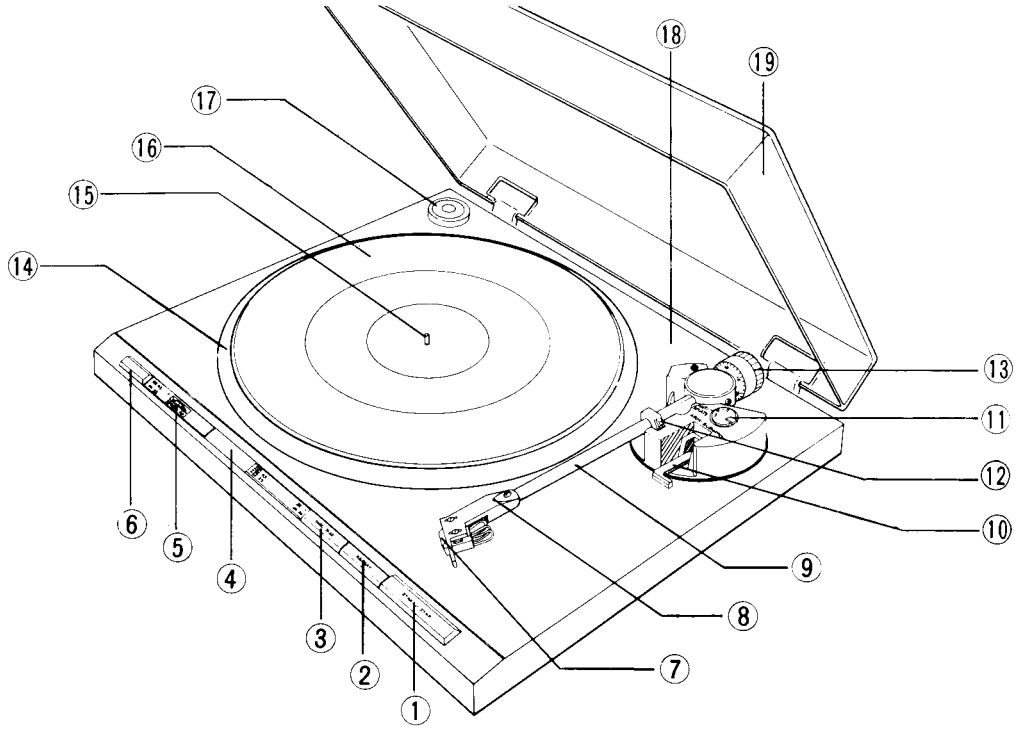
Power Requirements AC120V, 60Hz
Power Consumption 9W
Dimensions . . . . . 420(W) X 108(H) X 367(D)mm
16-1/2(W) X 4-1/4(H) X 14-7/16(D)in.
Weight . . . . . 5.9kg/13 lb

Accessories

EP Adapter 1
Operating Instructions 1

NOTE:
Specifications and design subject to possible modification without notice, due to improvements.

2. FRONT PANEL FACILITIES



① START/STOP switch
Depress this switch when starting auto play or when stopping play.

② REPEAT switch
Set this switch for repeat play.

③ DISC SIZE switch
Set this switch in accordance with the size of the record which is to be played.
[7″ 17] (released position): For 17 cm EPs
[12″ 30] (depressed position): For 30 cm LPs

④ Speed check window
Look through this window and observe the movement of the striped pattern when checking the rotational speed or finely adjusting the speed. The position of the striped pattern differs according to the power line frequency (50 Hz or 60 Hz) in the area of use and the speed (33 or 45 rpm) of the platter.
Top pattern: For 45 rpm in 50 Hz area
Second pattern: For 45 rpm in 60 Hz area
Third pattern: For 33 rpm in 50 Hz area
Bottom pattern: For 33 rpm in 60 Hz area

⑤ SPEED ADJ control
Rotate this control in order to finely adjust the speed of the platter.
The speed is reduced when the control is rotated in the [−] direction.
The speed is increased when the control is rotated in the [+] direction.

⑥ SPEED switch
Set this switch in accordance with the speed of the record which is to be played.
[33] (depressed position): For 33-1/3 rpm records
[45] (released position): For 45 rpm records

⑦ Cartridge

⑧ Headshell

⑨ Tonearm

⑩ ARM ELEVATION lever
Operate this lever when starting manual play or when temporarily suspending play.

⑪ ANTI-SKATE control
This is rotated when performing the antiskating adjustment.

⑫ Arm rest
This serves to hold and clamp the tonearm. When moving the tonearm, release the clamp

⑬ Tracking force adjustment weight
This is used when adjusting the tracking force.

⑭ Platter

⑮ Platter mounting shaft

⑯ Rubber mat

⑰ EP adapter
This is used when playing records without a "middle."

⑱ Cabinet

⑲ Dust cover

3. DISASSEMBLY

3.1 PANEL AND BASE

In removing the panel, follow the below listed steps in the order given. Using any unnecessary force will result in bending the springs or damaging other parts.

Panel removal steps

1. Remove the headshell and weight assembly, and the weight shaft assembly.
   The weight shaft assembly is removed by loosening screw (Hexagone socket screw) and the headshell by loosening screw ❶.
2. Lift off the turntable platter.
3. Loosen insulator attachment screws ❷ and remove the insulator. (Do not mix the color-coded float springs. They must be replaced with their original insulators during reassembly.)
4. Set the record size selector switch to "30cm".
5. Release the arm clamp and move the tonearm as far as it will go toward the center. Then rotate the motor center shaft clockwise returning the tonearm to the arm rest. Stop the center shaft.
6. Remove the rear panel PU cord strain relief.

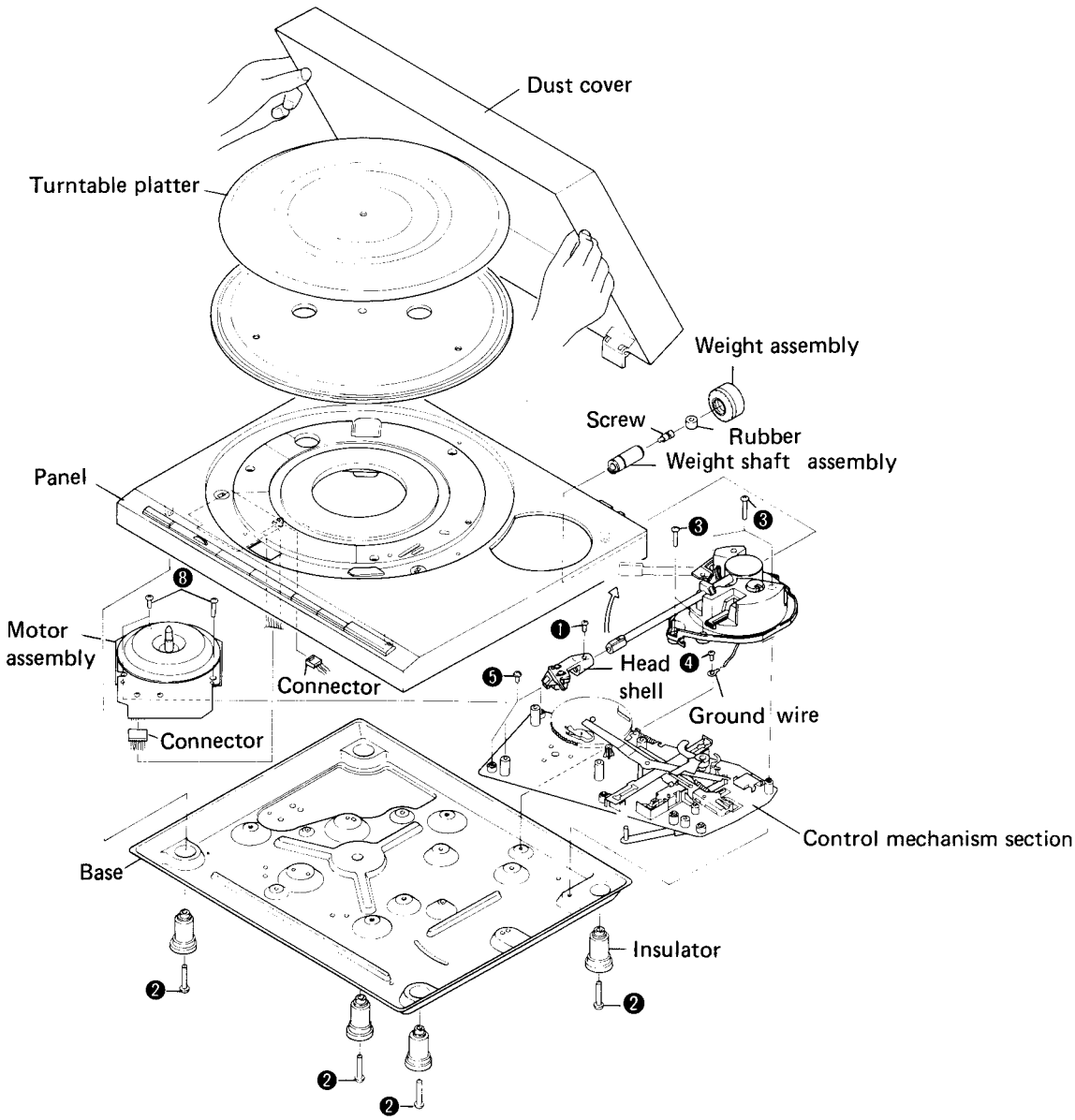


Fig. 3-1 Disassembly

7. Lift the front section of the panel (operating controls) very slightly and make sure the slider and spring is disengaged from the selector lever. If the spring is caught on something, use a long and thin screwdriver and free the spring from the large center opening.
8. Unplug the 2P and 5P connectors.
9. Completely remove the PU cord from the panel.
10. Lift up the headshell end of the tonearm, and taking care not to damage the tonearm, remove it from the panel. (Hold the tonearm steady.)

3.2 D.D MOTOR ASSEMBLY

After the panel has been removed, loosen the three motor attachment screws ❽ and remove the motor.

3.3 TONEARM SECTION

Remove the tonearm section by taking out the three arm base attachment screws ❸ and one ground wire securing screw ❹.

3.4 CONTROL MECHANISM SECTION

After the tonearm section has been removed, loosen the three control mechanism attachment screws ❺ and remove the assembly.

3.5 TONEARM

1. Disconnect the tonearm lead wires from the PU board (See Fig. 3-2).
   Note that some of the lead wires have been soldered to the PU board, and must be disconnected with care.
2. Loosen the set screw ❻ with a screwdriver to remove the PU plate under the arm base (See Fig. 3-3).
3. Undo the screw ❼ securing the tonearm to the arm base (See Fig. 3-3).

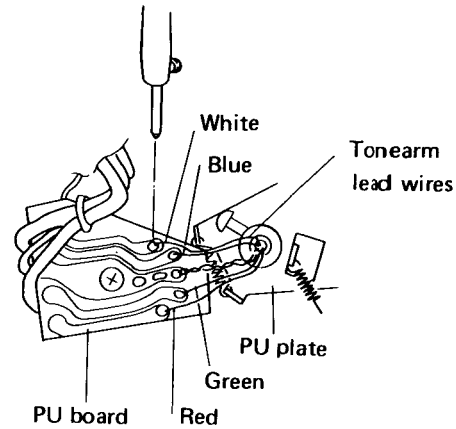


Fig. 3-2 Disconnect the tonearm lead wires

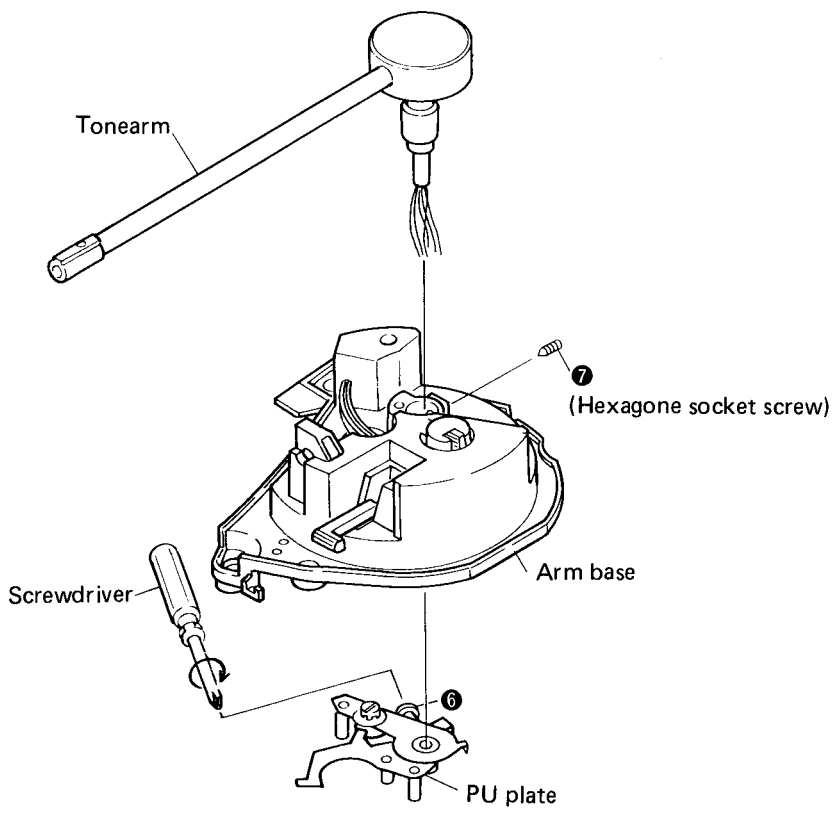


Fig. 3-3 Remove tonearm

3.6 PANEL AND BASE REASSEMBLY

1. Turn the center shaft clockwise so that the mechanism assembly is set to the reset position.
2. Hook the driver lever spring to the panel boss.
3. Lift the forward of the panel and plug in the 2P and 5P connectors.
   Clamp the tonearm in the arm rest and push the START/STOP button.
4. Attach the PU cord stopper.
5. Attach the insulators. (Make certain the color-coded float springs are attached to the correct insulators.)
6. Attach the weight shaft assembly.

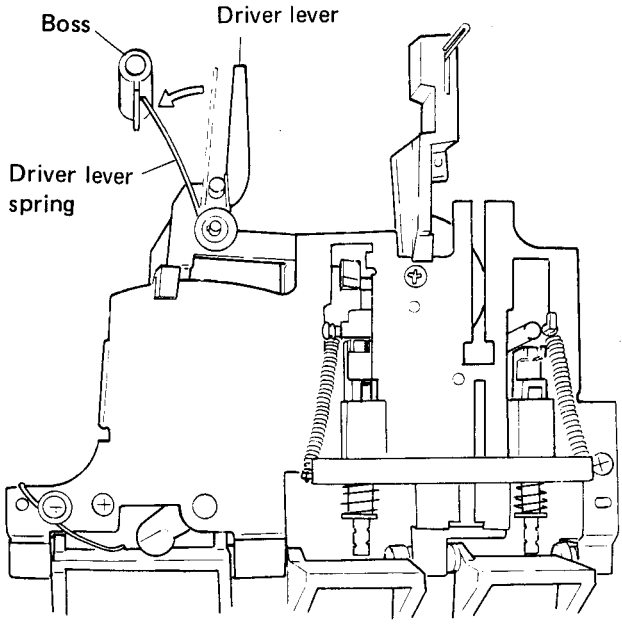


Fig. 3-4 Spring positioning

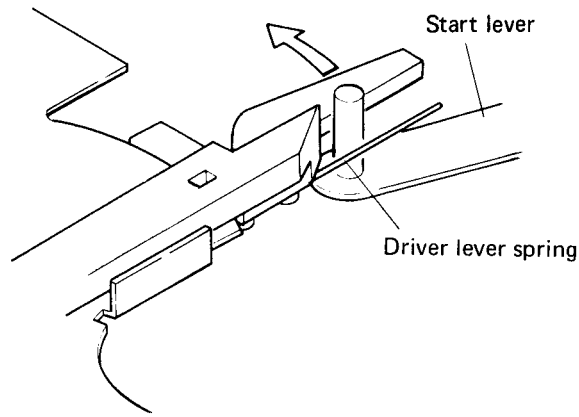
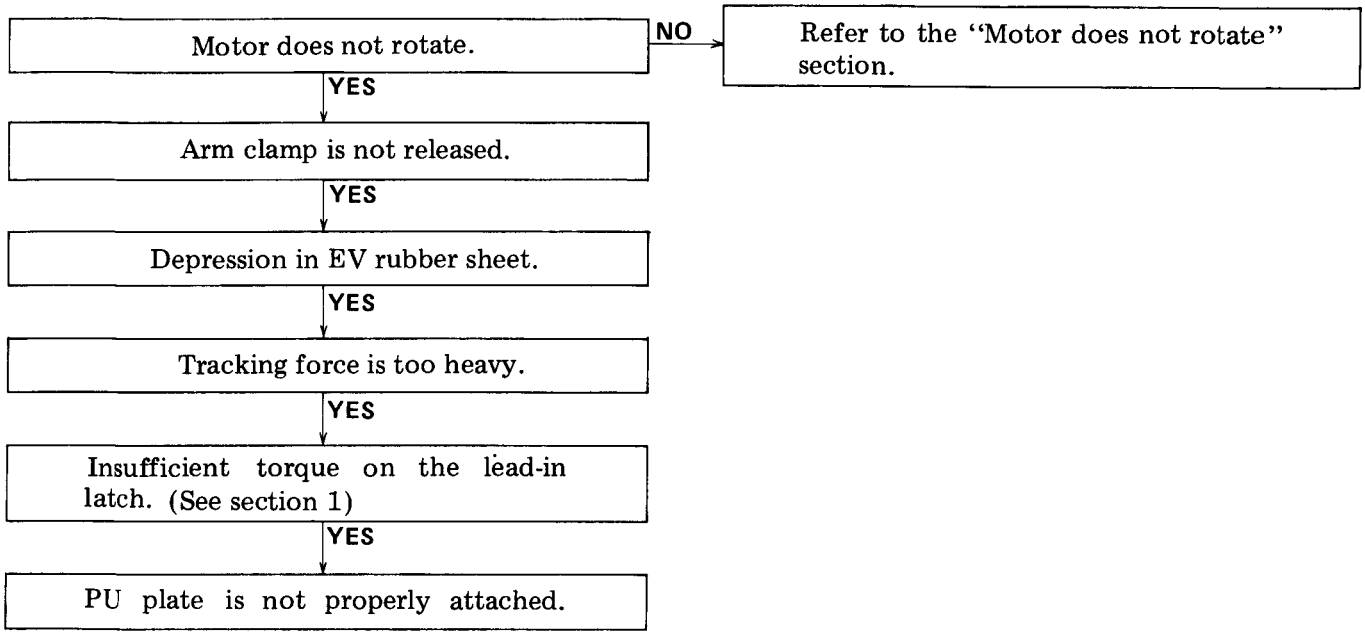


Fig. 3-5 Positioning the spring

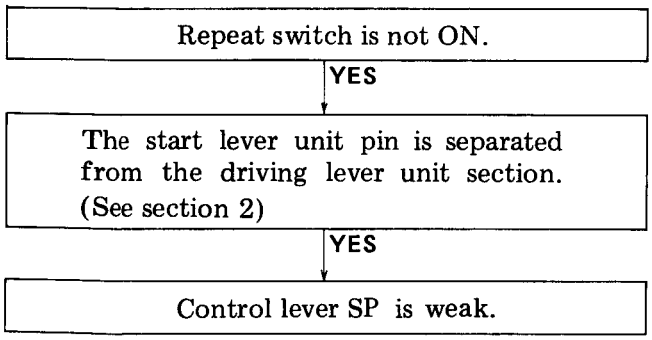
4. TROUBLESHOOTING

Use the following directions to find the cause of each type of breakdown. Improper adjustment units should be completely readjusted.

■ DOES NOT LEAD IN



■ DOES NOT REPEAT


Repeat switch is not ON.
YES
The start lever unit pin is separated from the driving lever unit section. (See section 2)
YES
Control lever SP is weak.

Section 2

As shown in figure 4-2, if the start lever unit pin is out of line in the direction of Ⓐ, repeat will not operate. If it is too far in the direction of Ⓑ, the unit will not start. In these cases, assemble referring to the method of joining the panel and bottom panel (lid).

Section 1

As shown in figure 4-1, if the force required to turn over the lead-in latch is less than 180g at a point 13mm from the center, bend the click leaf spring toward until the force is 180 — 320g.

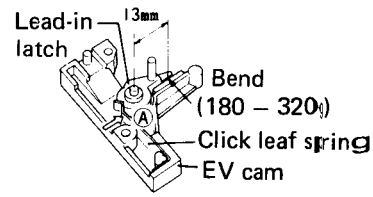


Fig. 4-1 Adjustment of lead-in latch with insufficient torque

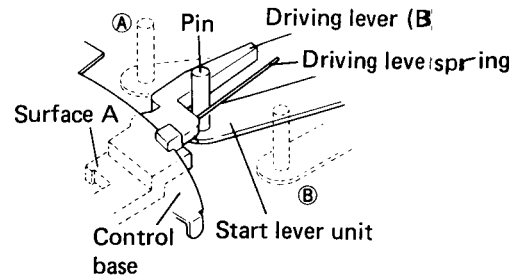


Fig. 4-2 Misaligned pin of start lever unit

■ REPEAT FUNCTION IS REPEATED

Separate the panel section and bottom panel and, as shown in figure 4-3, apply a tension of 10g to the start lever unit pin in direction Ⓐ. If the repeat function operates, the selector and reset plate sections are not moving properly. If the unit stops, the driving lever (B) is not moving properly.

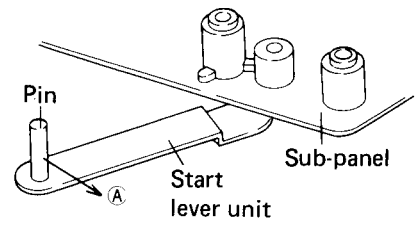
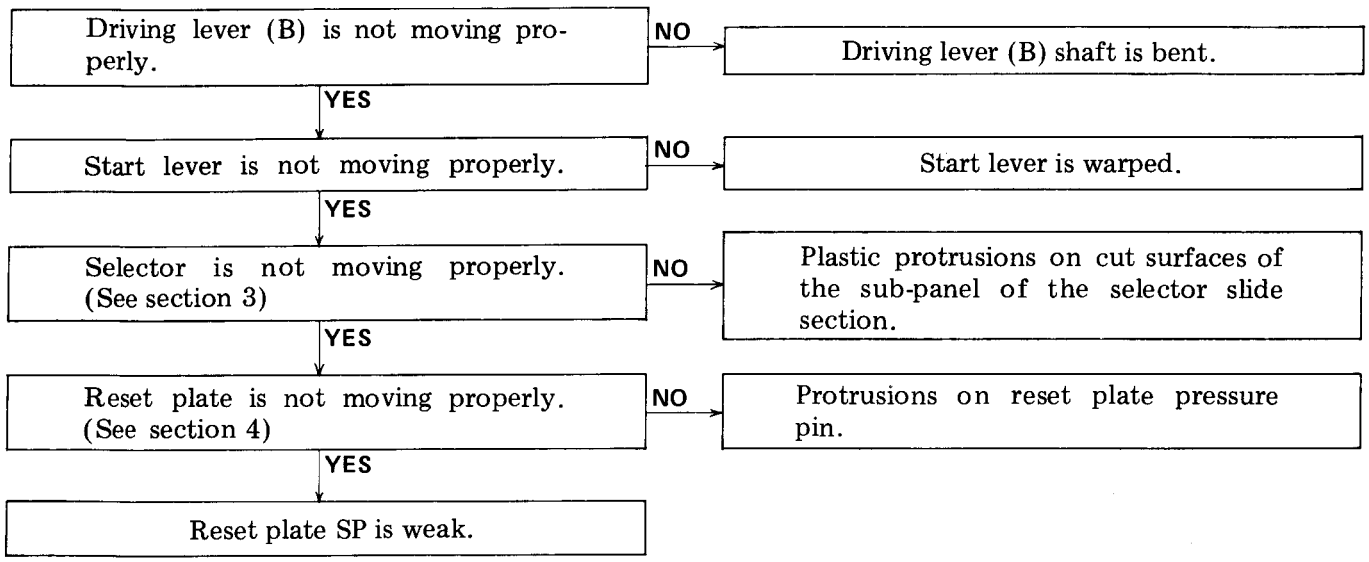


Fig. 4-3 Check of repeat operation.


Driving lever (B) is not moving properly.
NO
Driving lever (B) shaft is bent.
YES
Start lever is not moving properly.
NO
Start lever is warped.
YES
Selector is not moving properly. (See section 3)
NO
Plastic protrusions on cut surfaces of the sub-panel of the selector slide section.
YES
Reset plate is not moving properly. (See section 4)
NO
Protrusions on reset plate pressure pin.
YES
Reset plate SP is weak.

Section 3

If there are protrusions remaining from the original-pressing process on surfaces Ⓐ, Ⓑ, and Ⓒ of the sub-panel which slides with the selector, the movement of the selector will be adversely affected. Therefore, these protrusions must be removed (Fig. 4-4).

Section 4

If there are plastic protrusions on the pressure pin section of section Ⓓ of the reset plate, these protrusions will come in contact with the lower surface of the driving panel when the reset plate moves in direction Ⓔ and the movement of the reset plate will be adversely affected. Therefore, these protrusions must be removed (Fig. 4-4).

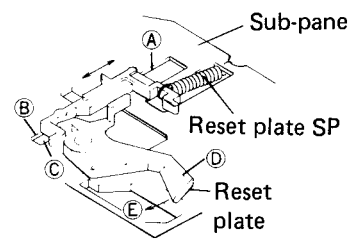


Fig. 4-4 Improper movement of selector

■ AUTO-RETURN DOES NOT WORK

Section 5

After performing the return operation, if the curved section of the signal plate and curved section of the starting plate are not in contact with surfaces Ⓐ and Ⓑ respectively of the cam, reset will be incomplete and the starting position will be late. As a result, the return function may not operate at times. In this case, bend the signal plate Ⓒ so that dimension A is 0.5mm or larger.

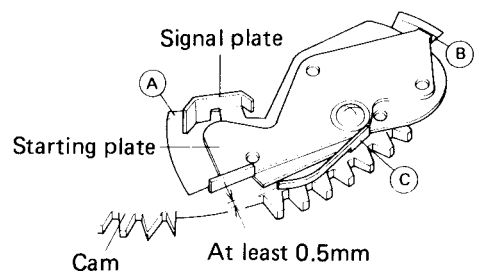


Fig. 4-5 Incomplete reset of starting and signal plates

Change in starting position adjustment.

YES

Starting plate does not follow the signal plate. — NO → Too much grease between the signal plate and the cam.

YES

Inner diameter of the starting plate hole is small.

Protrusions on the caulk section of the starting plate hole.

Not enough grease between the starting plate and signal plate.

After starting, incomplete reset of the signal plate. (See section 5) — NO → The curved section of the signal plate is deformed.

YES

The inner areas of records can not be tracked. — NO → Arm lead wire is caught on something.

YES

PU cord is touching the PU plate.

Operator of the detection lever is not smooth.

Looseness in the PU plate attachment.

■ **RETURN IS FAST (RETURN AT 1mm PITCH)**

Protrusions on the pinion gear section (See section 6)

Section 6

If there are rough areas of plastic protruding from the Ⓐ section of the protruding section of the pinion gear, the return function may operate at a pitch of only 1mm. In this case, remove the plastic protrusions completely (Fig. 4-6).

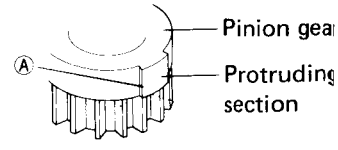
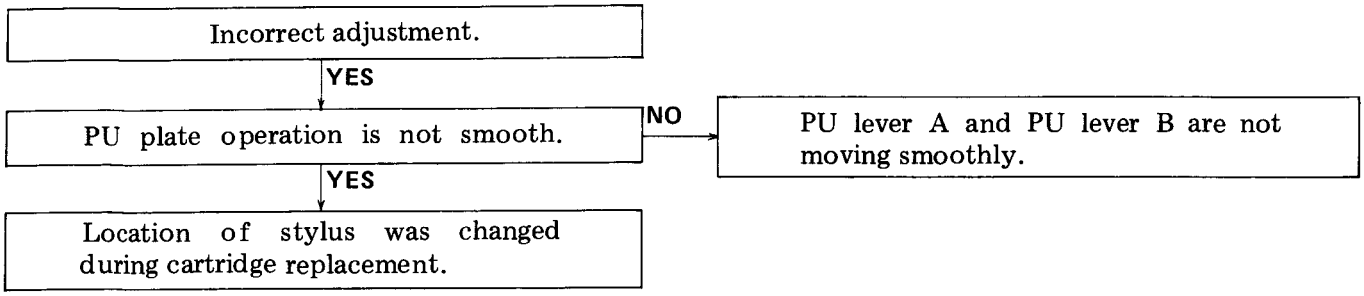


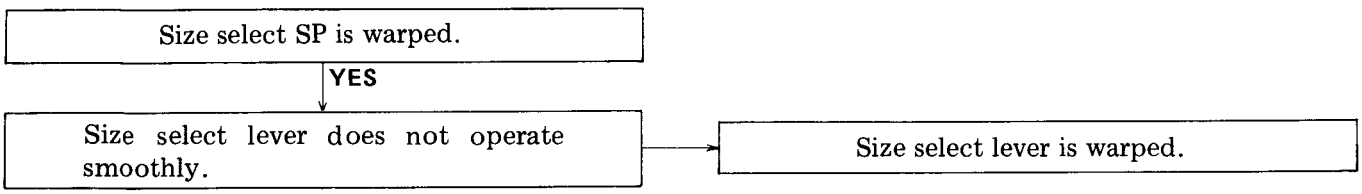
Fig. 4-6 Elimination of pinion gear protrusions

■ TONEARM DOES NOT LOWER IN CORRECT POSITION

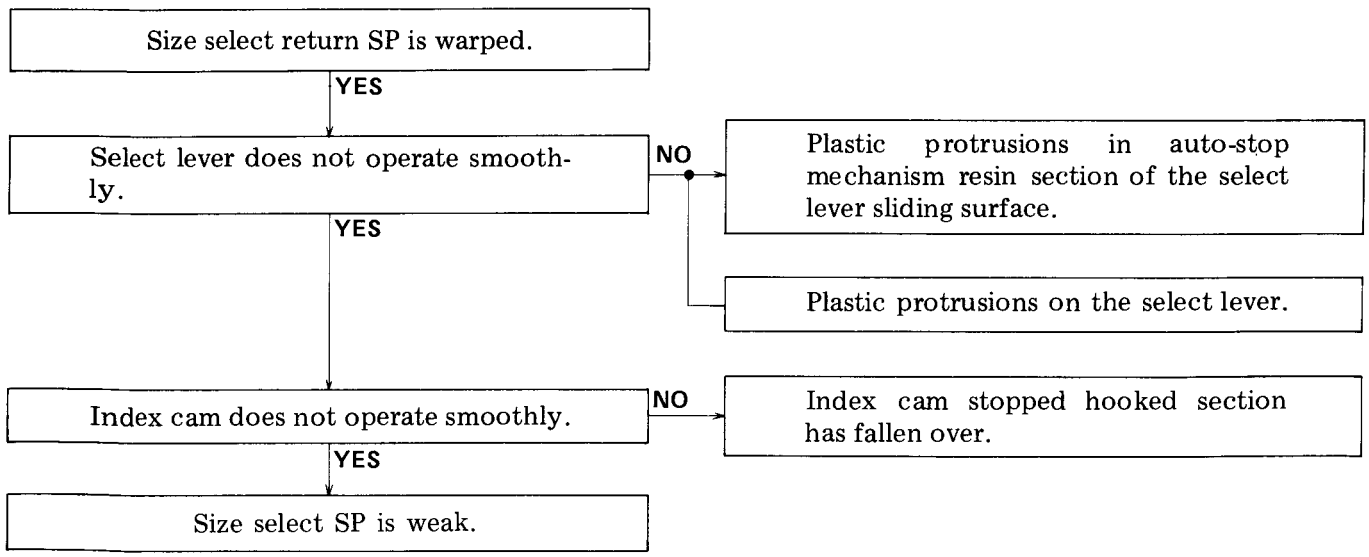

Incorrect adjustment.
YES
PU plate operation is not smooth.
NO
PU lever A and PU lever B are not moving smoothly.
YES
Location of stylus was changed during cartridge replacement.

■ RECORD SIZE SELECTOR DOES NOT WORK

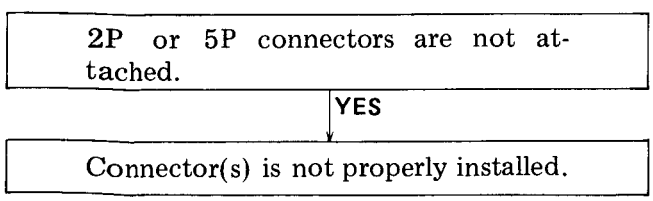
Tonearm descends at 17cm location when record size selector is set at 30cm.



Tonearm descends at 30cm location when record size selector is set at 17cm.


Size select return SP is warped.
YES
Select lever does not operate smoothly.
NO
Plastic protrusions in auto-stop mechanism resin section of the select lever sliding surface.
Plastic protrusions on the select lever.
YES
Index cam does not operate smoothly.
NO
Index cam stopped hooked section has fallen over.
YES
Size select SP is weak.

■ MOTOR DOES NOT ROTATE



- **WITH THE RECORD SIZE SET AT 17cm, THE TONEARM IS RETURNED TO THE ARM REST.**

Detector lever and signal lever are touching.

↓

Detector lever is bent.

- **AUTO OPERATION REPEATS**

Detector lever and leaf spring (start plate) are touching at the mechanism stop location.

NO → Leaf spring (start plate) is deformed.

- **MOTOR DOES NOT STOP**

Start panel is not moving properly.

NO → EV cam is warped.

NO → The start plate spring is weak. (See section 7)

YES ↓

The switch lever and switch locker are not locking (See section 7).

NO → The installation location of the PU plate is incorrect.

Section 7

In order to turn the power OFF, the PU plate shaft touches surface Ⓐ of the switch locker pushing it over so it locks with the switch lever turning the microswitch OFF (Fig. 4-7). If the amount of push on the switch locker is insufficient, it can not lock with the switch lever. With the tonearm locked in the arm rest, as shown in figure 4-8, attach the PU plate precisely midway between the first and second points from the arm base scale mark counting away from you.

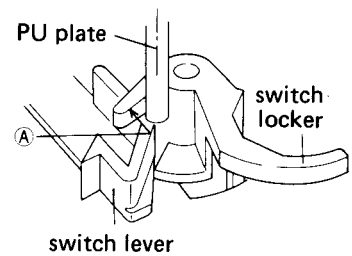


Fig. 4-7 Adjustment of switch locker

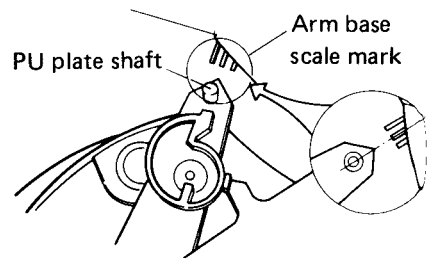
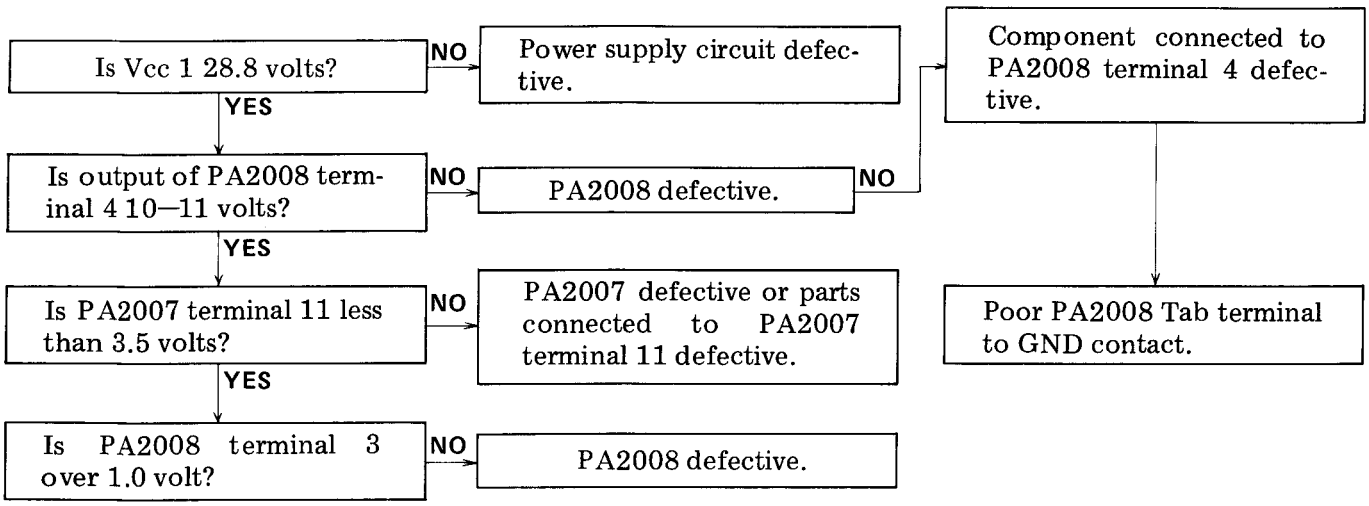


Fig. 4-8 Adjustment of PU plate

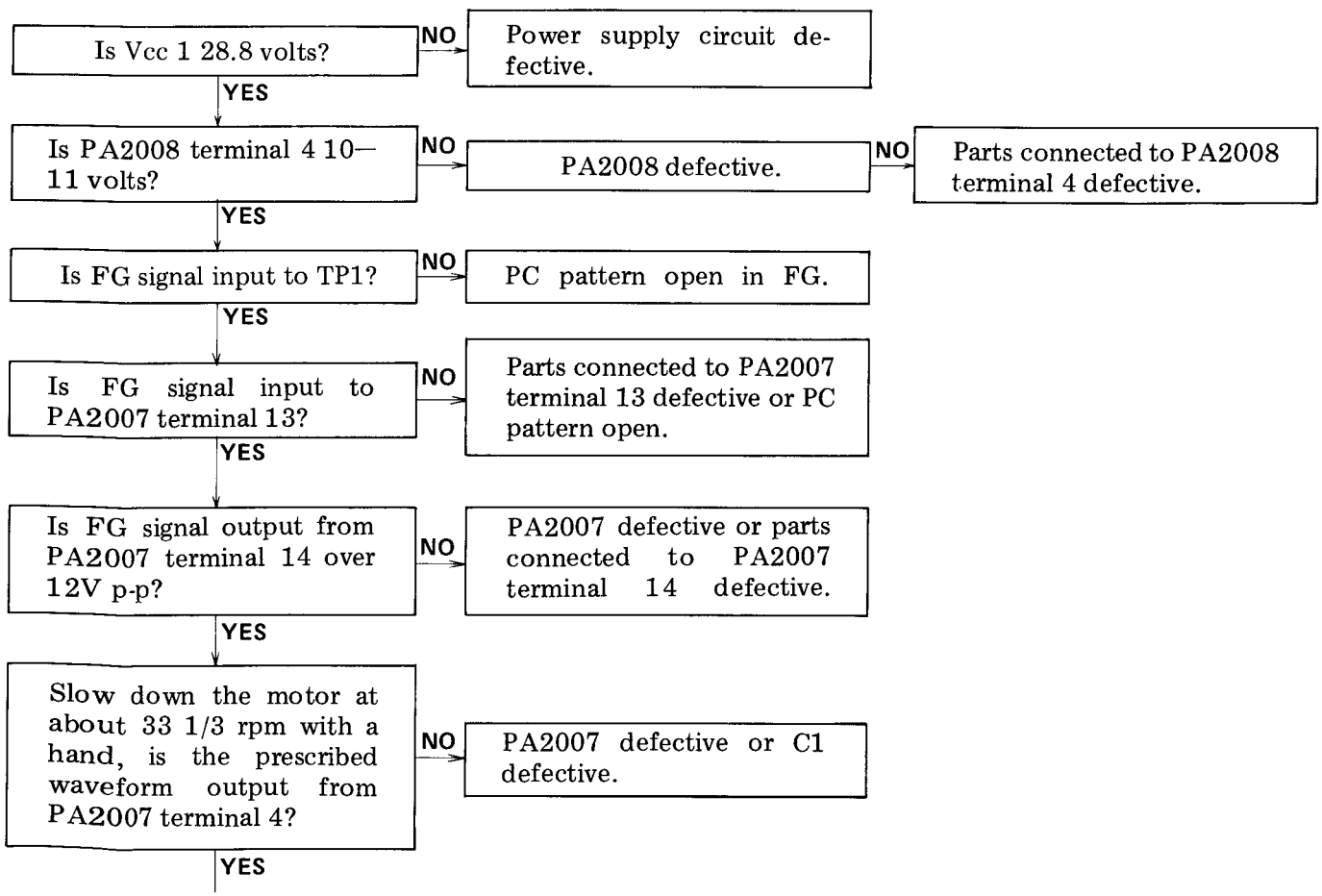
■ MOTOR ASSEMBLY

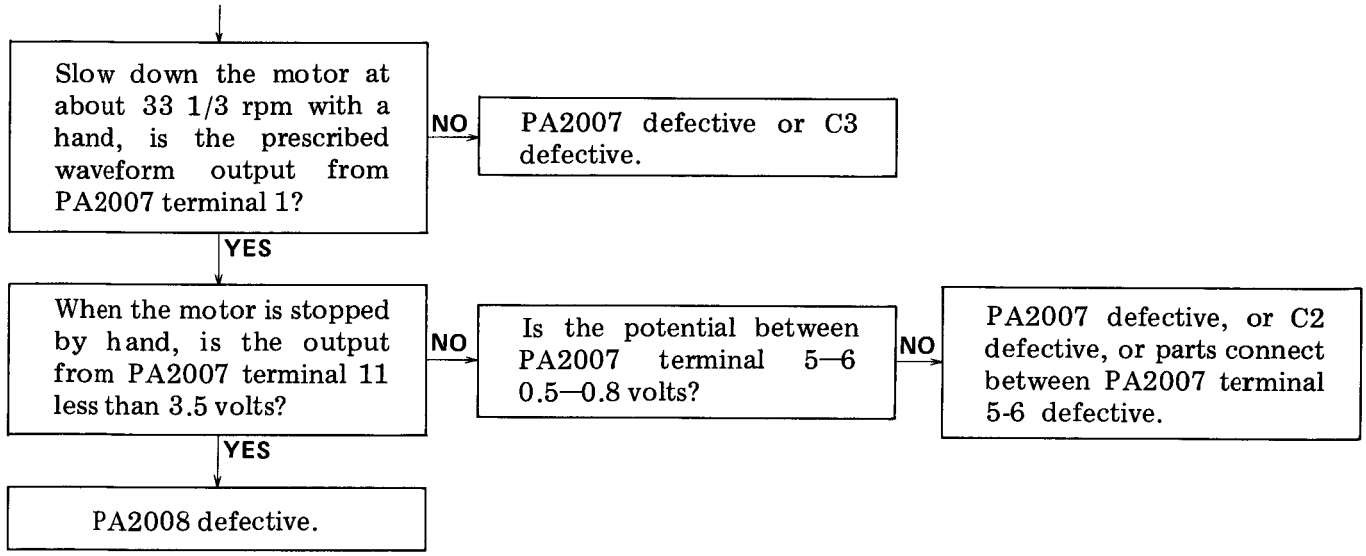
NOTE:
The IC PA2008 used in the PXM-090 does not have a dedicated ground pin for its internal circuitry, but uses the thermal fan ground. When replacing the IC, make sure the securing screws retaining the ground line between the IC and thermal dissipator and between the thermal dissipator and motor base, and base to circuit board is securely tightened.

• Motor Does not Turn

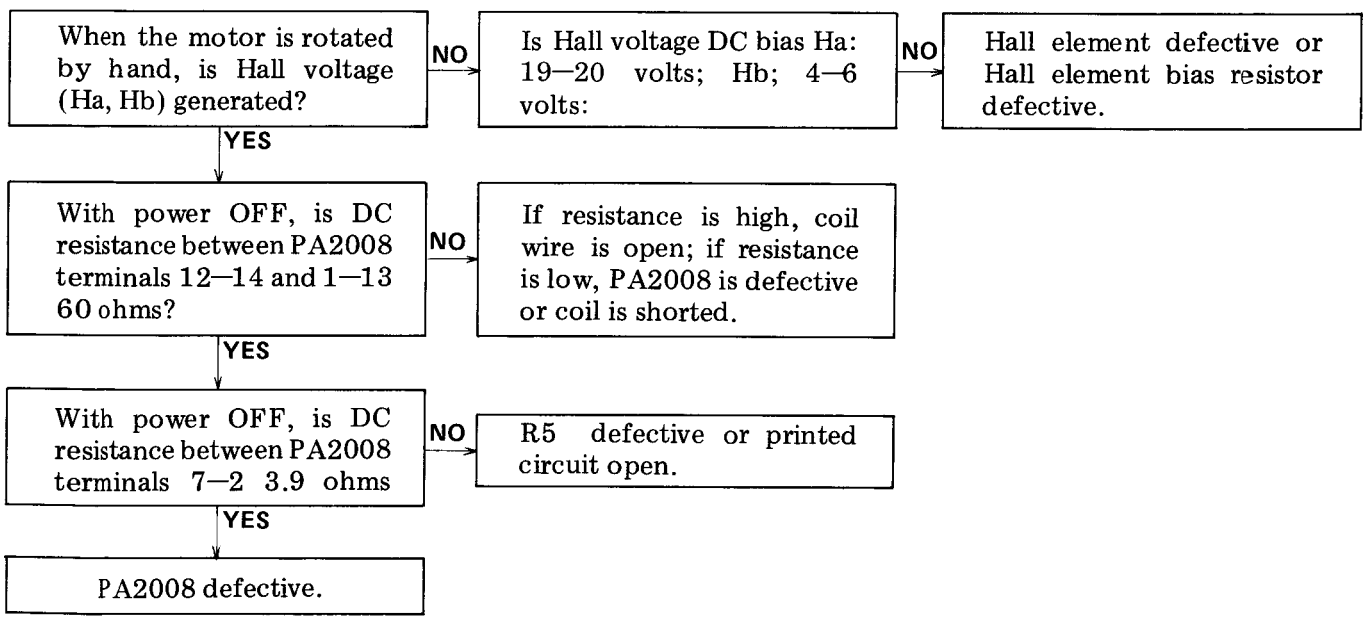


• Motor Runs away


Is Vcc 1 28.8 volts?
NO
Power supply circuit defective.
YES
Is PA2008 terminal 4 10—11 volts?
NO
PA2008 defective.
NO
Parts connected to PA2008 terminal 4 defective.
YES
Is FG signal input to TP1?
NO
PC pattern open in FG.
YES
Is FG signal input to PA2007 terminal 13?
NO
Parts connected to PA2007 terminal 13 defective or PC pattern open.
YES
Is FG signal output from PA2007 terminal 14 over 12V p-p?
NO
PA2007 defective or parts connected to PA2007 terminal 14 defective.
YES
Slow down the motor at about 33 1/3 rpm with a hand, is the prescribed waveform output from PA2007 terminal 4?
NO
PA2007 defective or C1 defective.
YES


Slow down the motor at about 33 1/3 rpm with a hand, is the prescribed waveform output from PA2007 terminal 1?
NO
PA2007 defective or C3 defective.
YES
When the motor is stopped by hand, is the output from PA2007 terminal 11 less than 3.5 volts?
NO
Is the potential between PA2007 terminal 5—6 0.5—0.8 volts?
NO
PA2007 defective, or C2 defective, or parts connect between PA2007 terminal 5-6 defective.
YES
PA2008 defective.

- **Motor Dead Spot**


When the motor is rotated by hand, is Hall voltage (Ha, Hb) generated?
NO
Is Hall voltage DC bias Ha: 19—20 volts; Hb; 4—6 volts:
NO
Hall element defective or Hall element bias resistor defective.
YES
With power OFF, is DC resistance between PA2008 terminals 12—14 and 1—13 60 ohms?
NO
If resistance is high, coil wire is open; if resistance is low, PA2008 is defective or coil is shorted.
YES
With power OFF, is DC resistance between PA2008 terminals 7—2 3.9 ohms
NO
R5 defective or printed circuit open.
YES
PA2008 defective.

5. PRECAUTIONS FOR REASSEMBLY

Follow these directions and precautions when reassembling a unit after completing repairs. Be sure to lubricate as required, make no mistakes when attaching parts, and avoid all other careless mistakes that may be the cause of trouble later on.

5.1 AREAS THAT REQUIRE LUBRICATION

NOTE:
Types of lubricants and areas where they are used are listed in table 1.

Table 1

Type of Oil	Areas used
Silicon Oil #50000	raising shaft
GYA-008	all other areas

Lubrication points are specified for oils other than GYA-008. Never use a different type of oil.

• Cam Section

Apply oil to the heart-shaped grooved section (rear side of the cam) and lock plate sliding section in order to minimize wear on the sliding section and the burden on the mechanism.

• Driving Plate Assembly

Decrease the burden on the mechanism and the wear on the sliding section.

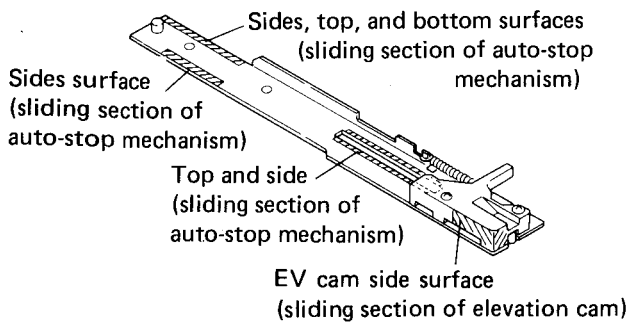

Sides, top, and bottom surfaces
(sliding section of auto-stop mechanism)
Sides surface
(sliding section of auto-stop mechanism)
Top and side
(sliding section of auto-stop mechanism)
EV cam side surface
(sliding section of elevation cam)

Fig. 5-1 Driving panel assembly section

• Switch Locker Section

Apply oil to the switch locker (opening) and sub-panel base sliding section to decrease the burden on the mechanism.

When applying oil to the opening (shaft hole), do not apply any oil 2—3mm from the bottom surface. If oil is applied 2—3mm within the bottom surface, it may come out the bottom and go between the switch lever and sub-panel base causing the switch lever to operate ineffectively.

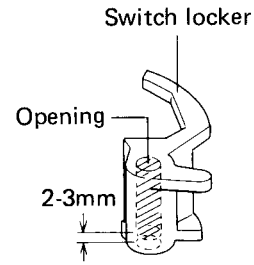


Fig. 5-2 Switch locker section

• Selector Section

Apply oil to the surface of the sub-panel base of the selector sliding section to decrease the burden on the mechanism and wear on the sliding section.

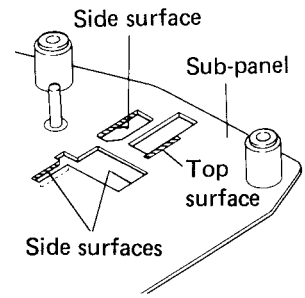


Fig. 5-3 Selector section

• Reset Plate Section

Apply oil to the sub-panel base (shaft) and sliding section of the reset plate to decrease the burden on the mechanism.

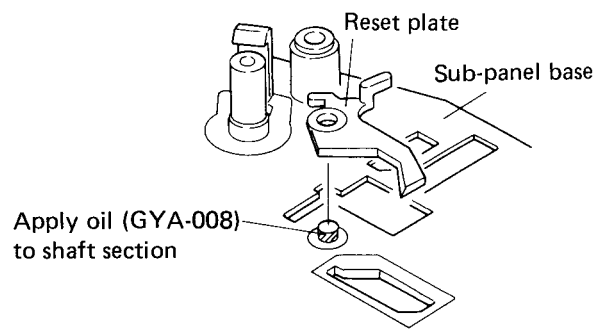


Fig. 5-4 Reset plate section

• Index Cam Section

Apply oil to the index cam, sub-panel shaft section, and lower surface of the hooked section to decrease the burden on the mechanism.

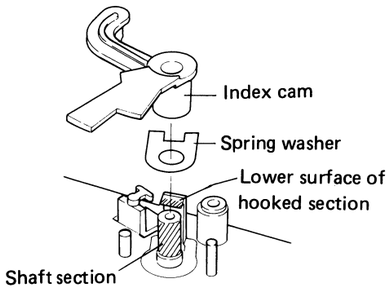


Fig. 5-5 Index cam section

- **EV Lever Unit Section**

Apply oil to the sliding section of leaf spring (A) and EV lever unit to decrease the burden on the mechanism.

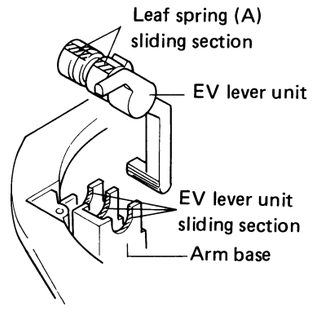


Fig. 5-6 EV lever unit section

- **Elevation Cam Section**

Apply oil to the elevation cam and sliding section of the raising shaft to decrease the burden when operated.

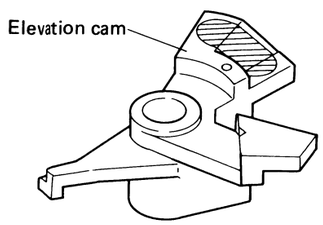


Fig. 5-7 Elevation cam section

- **EV Sheet Section**

Apply oil to the raising shaft and sliding section of the bearing to assure stability in the elevation lowering speed.

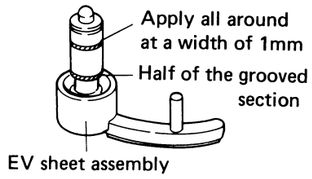


Fig. 5-8 EV sheet section

- **Driving Lever (B) Section**

Apply oil to the driving lever (B), control base, and the sliding section of the driving lever shaft to decrease the burden when operated.

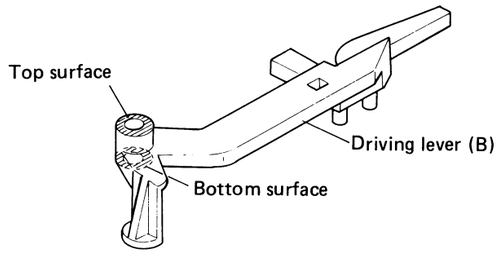


Fig. 5-9 Driving lever (B) section 1

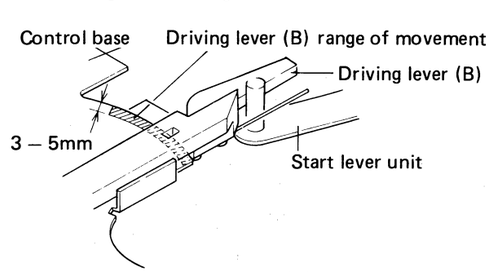


Fig. 5-10 Driving lever (B) section 2

5.2 PRECAUTIONS FOR ATTACHMENT OF PARTS AND REASSEMBLY

- **Reset Plate SP Attachment**

As shown in figure 5-11, the reset plate SP hook is attached by putting the open section on the sub-panel base side.

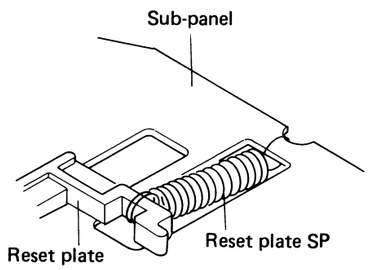


Fig. 5-11 Reset plate SP attachment

- **Cam Assembly Attachment**

The cam assembly is attached by letting the lock plate go in the direction Ⓐ as shown in figure 5-12.

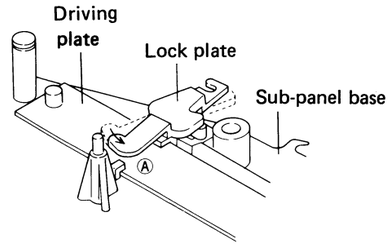


Fig. 5-12 Cam assembly attachment

- **Motor Attachment**

When installing the motor, set the cam in the mechanism stop location and verify that the starting plate section Ⓑ does not protrude beyond surface Ⓐ of the cam. If the motor is attached with the starting plate section Ⓑ protruding, the starting plate may be deformed, the motor pinion gear may be scratched, and the return function may be damaged.

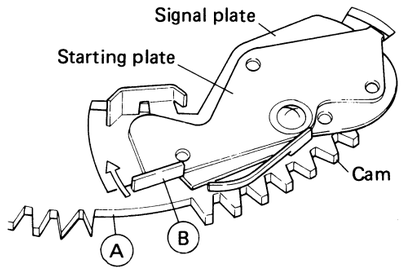


Fig. 5-13 Motor attachment

- **PU Plate Attachment**

Push the PU plate into place so that the PU plate bearing section touches the revolution shaft attachment nut. Installation direction is as shown in figure 5-14.

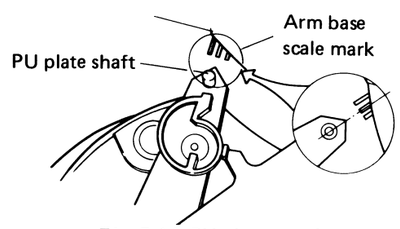


Fig. 5-14 PU plate attachment

- **AS Knob Attachment**

When installing the AS knob, put the AS knob rib against the AS knob revolution control stopper (attached to the arm base) and affix with the screw. As the stopper may break, be sure to press the AS knob down firmly when installing it.

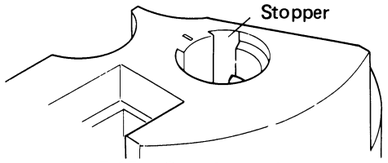


Fig. 5-15 AS knob attachment

- **Arm Base Attachment**

When attaching the arm base section to the mechanism section, put the mechanism section switch locker and switch lever in the locked position and verify that the tonearm is in the arm rest location. Also be sure to put the manual elevation lever in the up position and check that the PU plate shaft is in the position shown in figure 5-16.

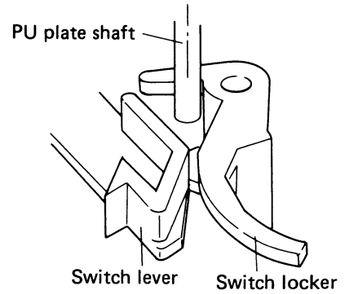


Fig. 5-16 Arm base attachment

- **Start Lever Unit Attachment**

Attach the shaft section of the start lever unit as shown in figure 5-17 so that it comes between the reset plate and start panel.

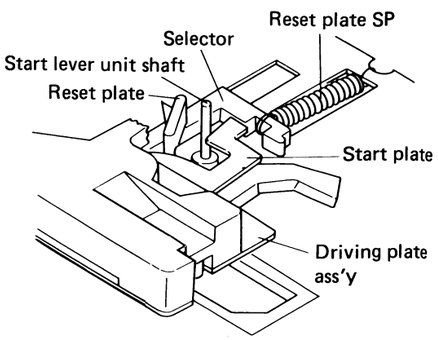
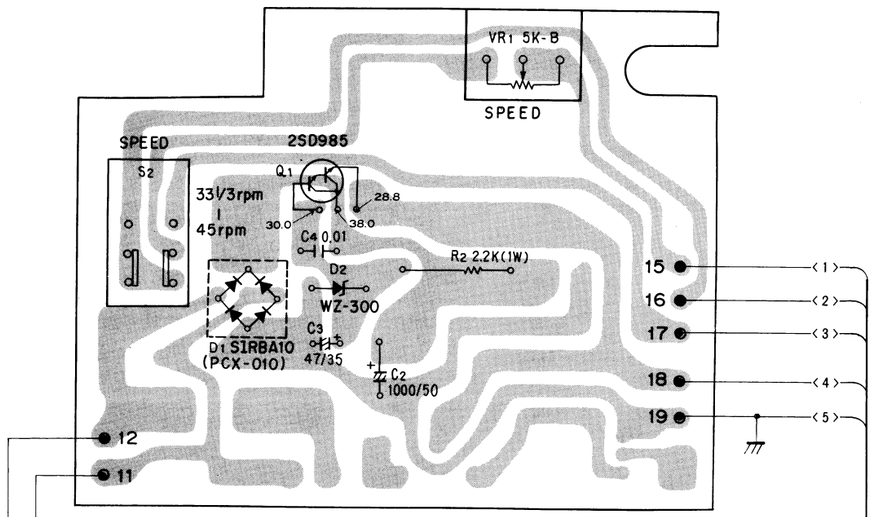


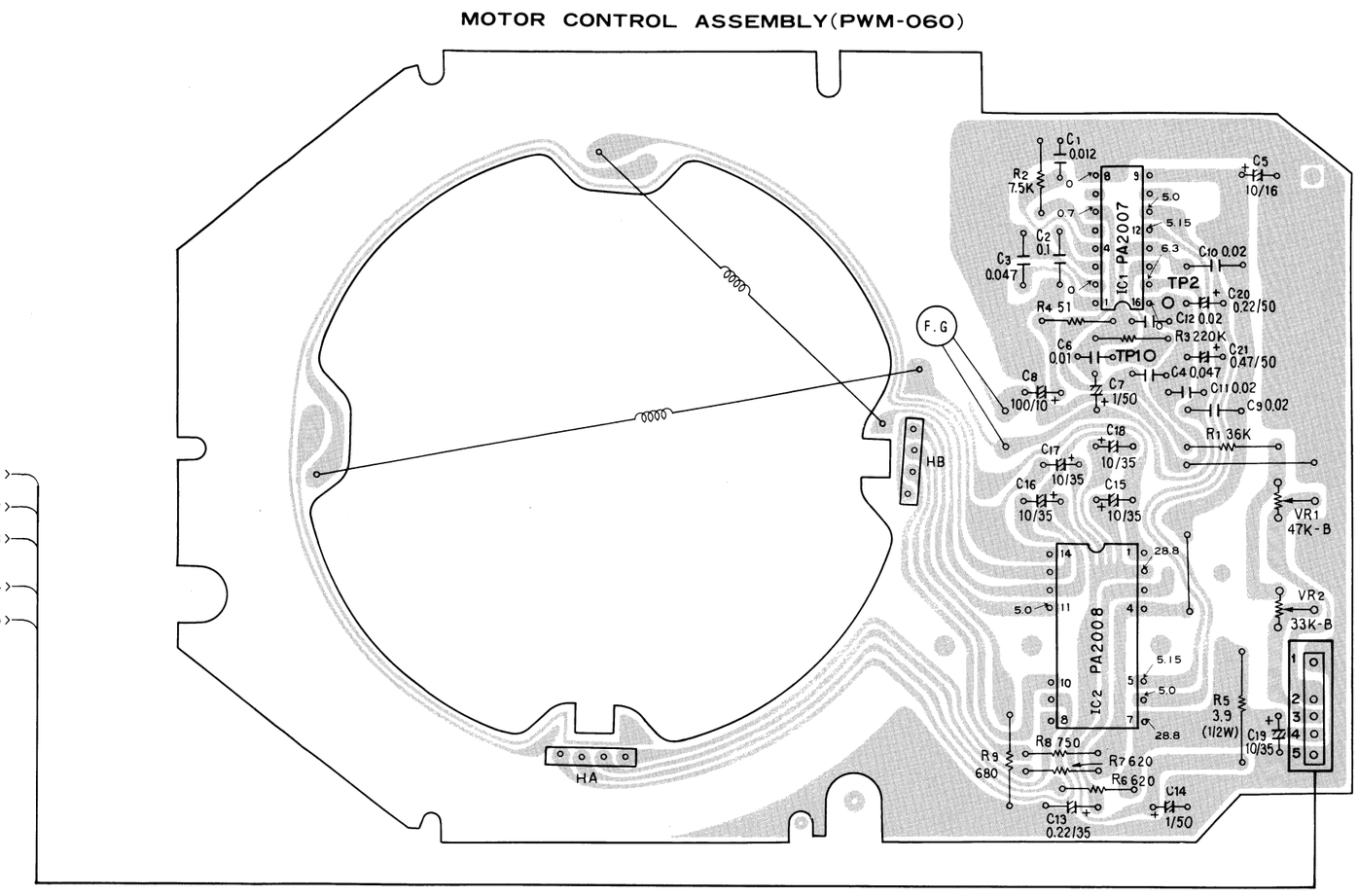
Fig. 5-17 Start lever unit attachment

6. P.C.BOARDS CONNECTION DIAGRAM

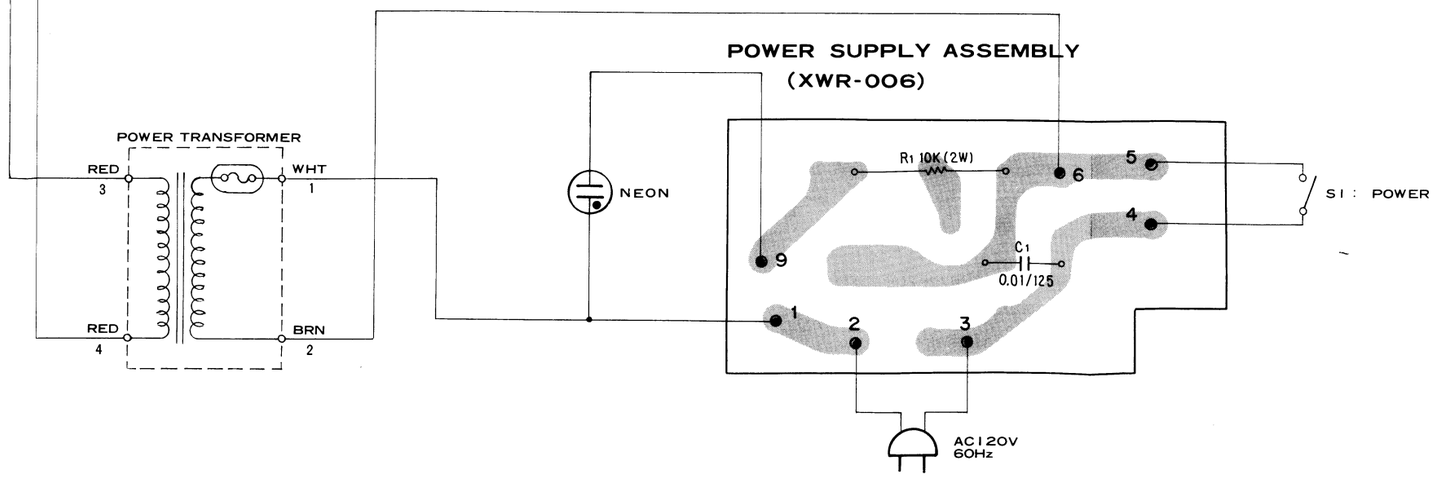
CONTROL ASSEMBLY (XWM-057)



MOTOR CONTROL ASSEMBLY(PWM-060)

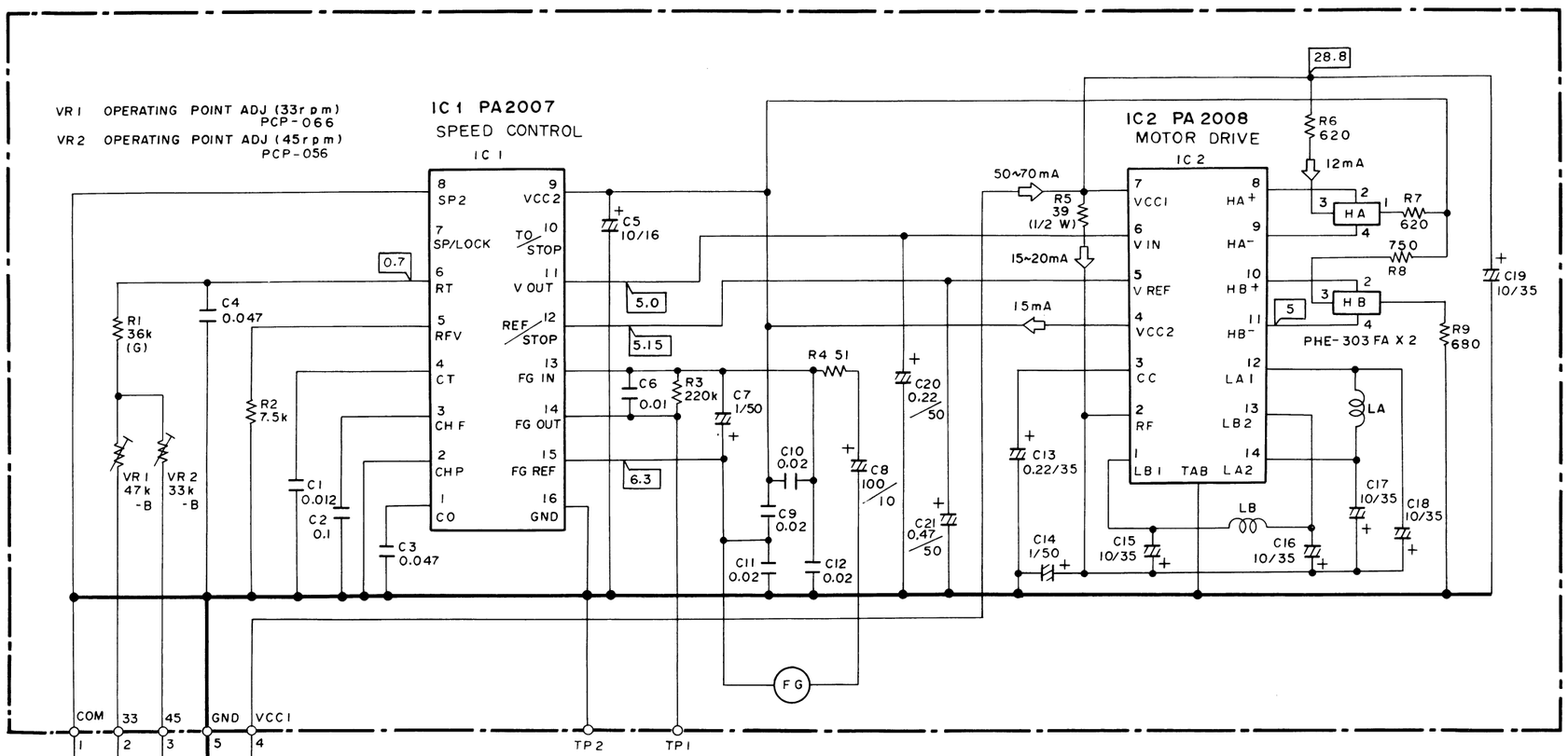


POWER SUPPLY ASSEMBLY (XWR-006)



7. SCHEMATIC DIAGRAM

MOTOR CONTROL ASSEMBLY (PWM-060)



1. RESISTORS:
   Indicated in Ω, ¼W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ±10% (M) : ±20% tolerance

2. CAPACITORS:
   Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
   Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
   ▭ : DC voltage (V) at no input signal
   ⇦ mA : DC current at no input signal

4. OTHERS:
   ⊘ : Adjusting point.
   The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

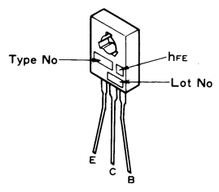
SWITCHES:

S1 : POWER	ON — OFF
S2 : SPEED	33 1/3 rpm — 45 rpm

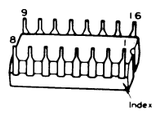
The underlined indicates the switch position.

External Appearance of Transistors and ICs

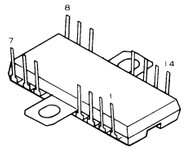
2SD985



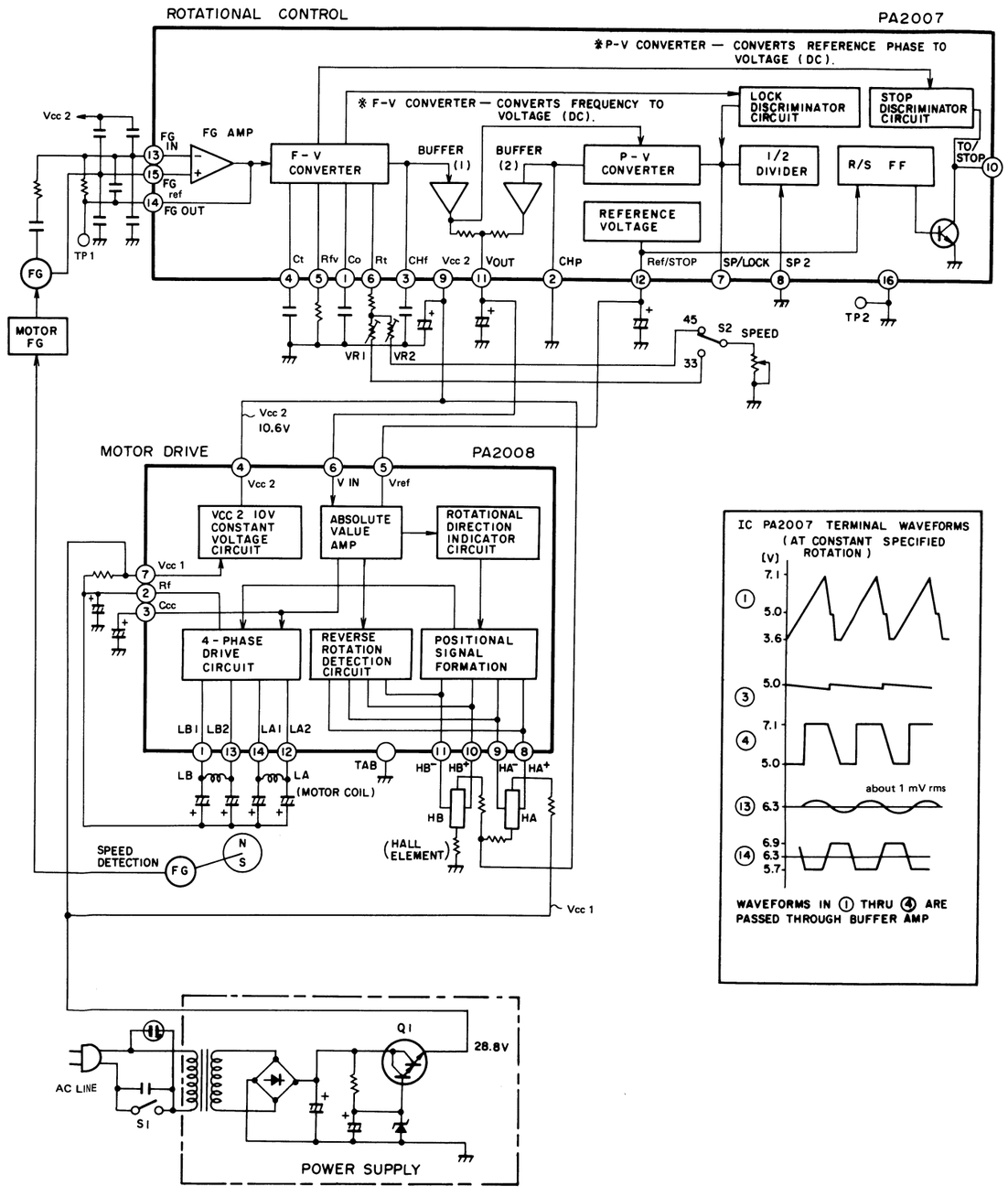
PA2007



PA2008



8. BLOCK DIAGRAM



9. ELECTRICAL PARTS LIST

NOTES:

- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*
  Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560Ω	*56 × 10¹*	*561 .....*	*RD¼PS 5 6 1 J*
57kΩ	*47 × 10³*	*473 .....*	*RD¼PS 4 7 3 J*
0.5Ω	*0R5*	*.....*	*RN2H 0 R 5 K*
1Ω	*010*	*.....*	*RS1P 0 1 0 K*

  Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	*562 × 10¹*	*5621 ....*	*RN¼SR 5 6 2 1 F*

- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★*
  ★★ GENERALLY MOVES FASTER THAN ★
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

Power Supply Assembly (XWR-006)

Mark	Part No.	Symbol & Discription	
⚠	PCL-036	C1	Capacitor
⚠	RS2PF103J	R1	Resistor

Control Assembly (XWM-057)

SEMICONDUCTORS

Mark	Part No.	Symbol & Discription
★★	2SD985-K	Q1
★	PCX-010 (WL-02)	D1
★	WZ-300 (MZ-300)	D2

SWITCH, CAPACITORS and RESISTORS

Mark	Part No.	Symbol & Discription
★★	PSG-029	S2
	CEA102M 50L	C2
	CEA470M 35L	C3
	CKDYF103Z 50	C4
★	PCS-022	VR1
	RS1PF222J	R2

Motor Control Assembly (PWM-060)

CAPACITORS

Mark	Part No.	Symbol & Description
	CQMA 123K 50	C1
	CKDYF 104Z 50	C2
	CQMA 473K 50	C3
	CKDYF 473Z 50	C4
	CEA 100P 16	C5
	CKDYF 103Z 50	C6
	CEA 010P 50	C7,C14
	CEA 101P 10	C8
	CKDYF 203Z 50	C9–C12
	CSZA R22M 35	C13
	CEA 100P 35	C15–C19
	CEANL R22M 50	C20
	CEA R47P 50	C21

RESISTORS

NOTE: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Part No.	Symbol & Description
	RD 1/4PM □□□J	R2–R4,R6–R9
	RD 1/2PS 3R9J	R5
	RN 1/4PR 363G	R1
★	PCP-066	VR1 (47k-B)
★	PCP-056	VR2 (33k-B)

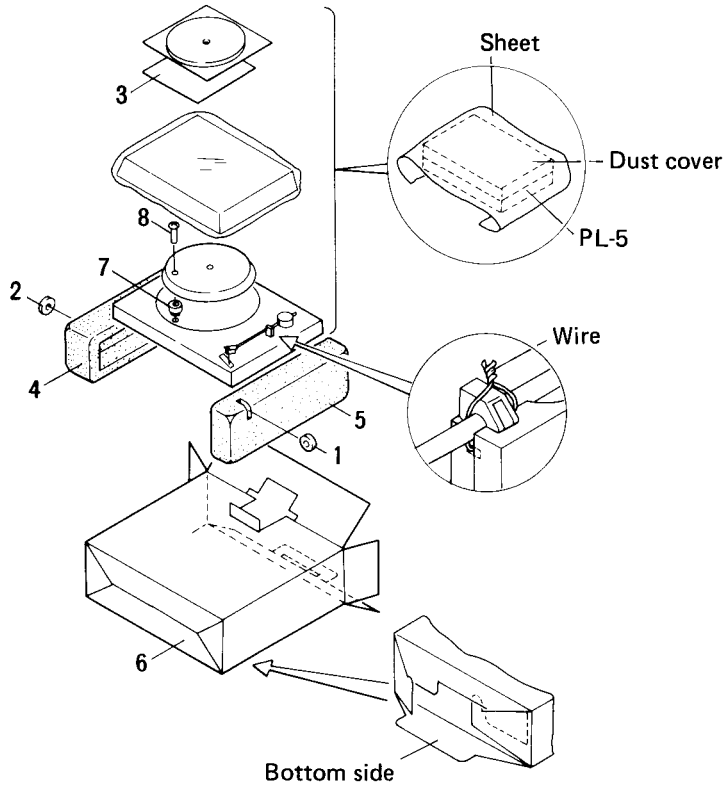
SEMICONDUCTORS

Mark	Part No.	Symbol & Description
★★	PA2007	IC1
★★	PA2008	IC2

OTHER

Mark	Part No.	Symbol & Description	
★	PCX-039	HA,HB	Hall element

10. PACKING



Parts List

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1.	N93-603	45 adaptor		6.	PHG-439	Packing case
	2.	PXB-501	Weight assembly		7.	PNX-294	Turntable platter packing
	3.	PRB-189	Operating instructions		8.	PBA-100	Screw
	4.	PHA-127	Protector (L)				
	5.	PHA-128	Protector (R)				

11. EXPLODED VIEWS

11.1 EXTERIOR

NOTES:

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★ .*
  ★★ GENERALLY MOVES FASTER THAN ★
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

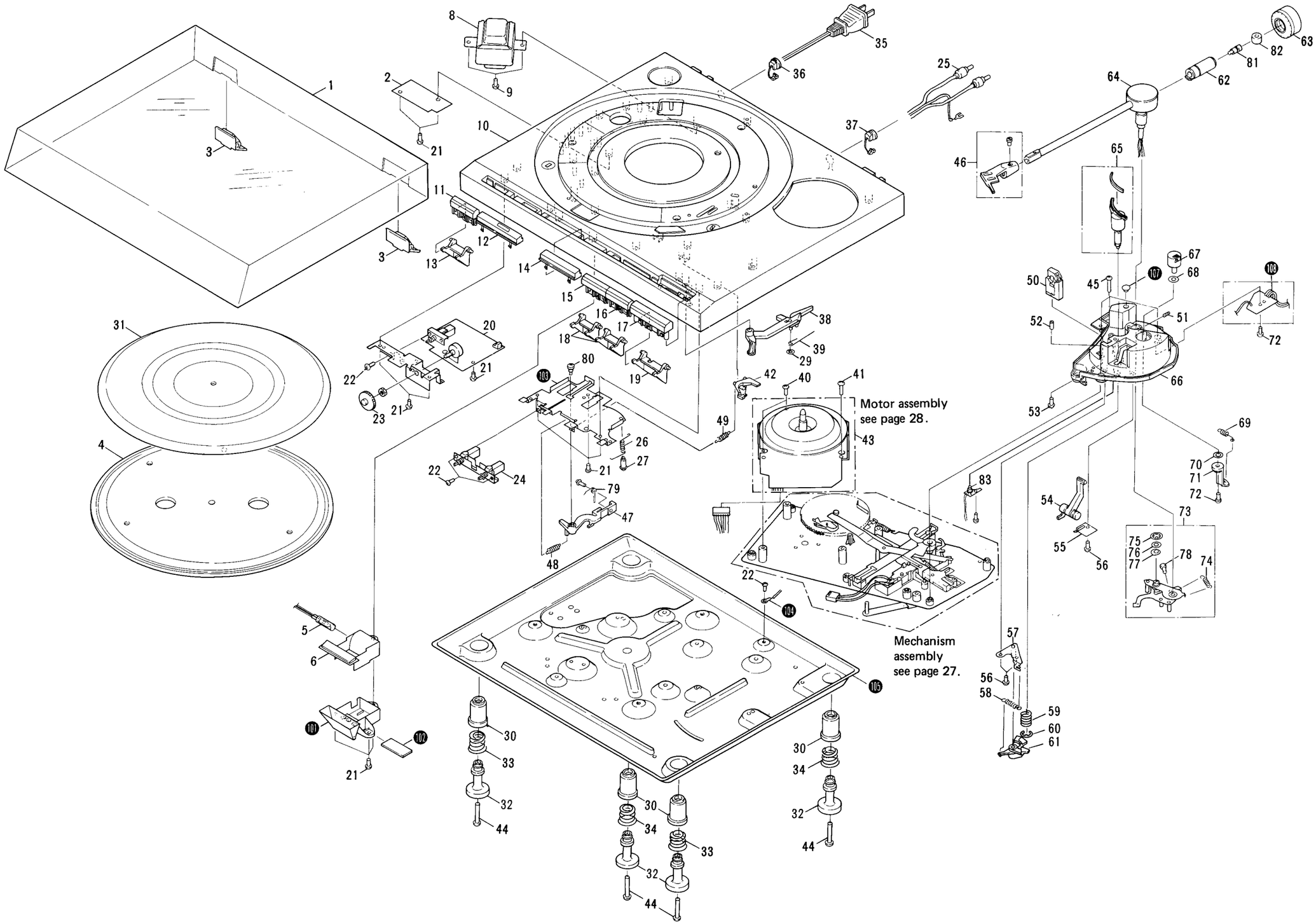
Parts List

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
★★	1.	PNV-034	Dust cover		6.	PNX-298	Lens holder
	2.	XWR-006	Power supply assembly		7.	. . . . .	
★	3.	PXB-155	Hinge assembly	⚠ ★	8.	PTT-119	Power transformer (120V)
	4.	PNR-164	Turntable platter		9.	PLZ40P120FMC	Screw
⚠ ★★	5.	PEL-046	Neon lamp		10.	PNX-347	Panel

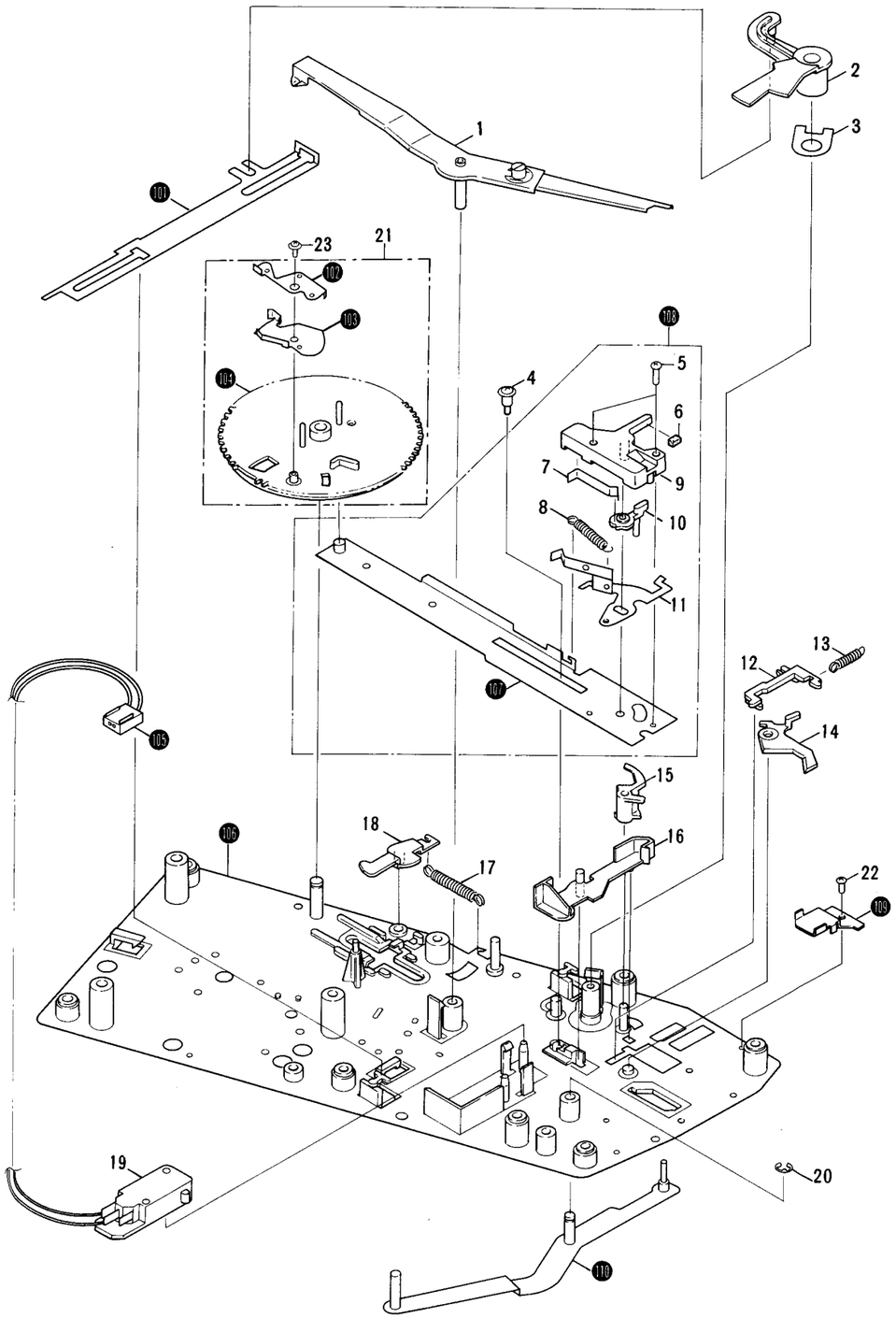
Mark	No.	Part No.	Description
	11.	PAD-088	SP knob (A) unit
	12.	PAM-075	Front name plate (B)
	13.	PNX-292	Switch lever (B)
	14.	PAM-076	Front name plate (C)
	15.	PAD-087	SE knob (A) unit
	16.	PAD-086	R knob (A) unit
	17.	PAD-085	S/S knob (A) unit
	18.	PNX-291	Switch lever (A)
	19.	PNX-303	Switch lever (C)
	20.	XWM-057	Control Assembly
	21.	PPZ30P080FMC	Screw
	22.	PDZ30P050FMC	Screw
	23.	PAC-086	Adjustment knob
★★	24.	PSG-033	Push switch
	25.	PDE-064	PU cord
	26.	PBH-307	Switch lever (C) spring
	27.	PBA-086	Screw
	28.	.....	
	29.	YP30S	Wahser
	30.	PEB-194	Damper cushion
	31.	PEA-057	Rubber mat assembly
	32.	PNX-293	Holder
	33.	PBH-295	Spring
	34.	PBH-294	Spring
⚠	35.	PDG-023	Power cord
	36.	PEC-058	Strain relief
	37.	PEC-056	Strain relief
	38.	PNX-289	Driving lever
	39.	PBH-247	Driving lever (A) spring
	40.	PBA-124	Screw
	41.	PBA-108	Screw
	42.	PNX-290	Control lever
★★	43.	PXM-090	Motor
	44.	PBA-118	Screw
	45.	PBA-108	Screw
	46.	PXA-882	Headshell assembly
	47.	PNX-340	Slider
	48.	PBH-322	Spring
	49.	PBH-321	Spring
★	50.	PXB-247	Tonearm rest assembly
	51.	ZMD40H080FBT	Screw
	52.	ZMR30H140FZK	Screw
	53.	IPZ30P100FMC	Screw
	54.	PNX-336	EV lever unit
	55.	PBK-053	EV plate spring (A)
	56.	VBZ30P080FMC	Screw
	57.	PXT-462	EV plate spring (B) unit
	58.	PBH-238	EV cam spring
	59.	PBH-293	EV spring
	60.	YE50S	E-type washer
	61.	PNX-339	EV cam
	62.	PXT-596	Weight shaft assembly
★	63.	PXB-501	Weight assembly
★	64.	PPD-624	Tonearm assembly
★	65.	PXB-227	EV sheet assembly

Mark	No.	Part No.	Description
	66.	PNX-341	Tonearm base
	67.	PAC-100	AS knob
	68.	PBF-017	Washer
	69.	PBH-292	Spring
	70.	PBE-012	AS spring washer
	71.	PNX-335	AS plate
	72.	VBZ30P150FMC	Screw
	73.	PXB-228	PU plate assembly
	74.	PBH-244	PU plate spring
	75.	YS40FBT	Fixed washer
	76.	WC40FMC	Plate washer
	77.	PNC-227	PU spring washer
	78.	PMD40P060FMC	Screw
	79.	PBH-320	Spring
	80.	PBA-128	Screw
	81.	PBA-535	Screw
	82.	PNT-554	Rubber bush
	83.	GL-2PR1	D5 diode
	101.		Holder
	102.		Mirror
	103.		Controller base
	104.		Lead unit (GND)
	105.		Base
	106.		
	107.		Rubber bush
	108.		Terminal board (PU cord)
	109.		
	110.		

Exterior



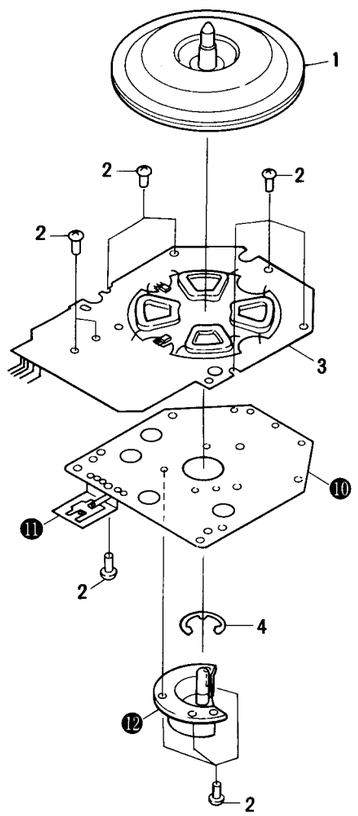
11.2 MECHANISM ASSEMBLY



Parts List

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1.	PXT-355	Detector lever unit		21.	PYY-100	Cam assembly
	2.	PNX-305	Index cam		22.	PDZ30P050FMC	Screw
	3.	PBK-039	Spring washer		23.	PBA-126	Screw
	4.	PBA-123	Screw				
	5.	PMZ26P100FMC	Screw				
	6.	PEC-065	EV cam buffer		101.		Select lever
	7.	PBK-038	Plate spring		102.		Signal plate
	8.	PBH-224	Start plate spring		103.		Starting plate
	9.	PNX-304	EV cam		104.		Cam
	10.	PNX-032	Lead ratch	⚠	105.		Connector assembly
	11.	PXT-454	Start plate unit		106.		Sub-panel unit
	12.	PNX-028	Reset plate		107.		Driving plate unit
	13.	PBH-223	Reset plate spring		108.		Driving plate assembly
	14.	PNX-029	Selector		109.		Protection plate
	15.	PNX-031	Switch lock		110.		Start lever unit
	16.	PNX-030	Switch lever				
	17.	PBH-225	Lock plate spring				
	18.	PNX-035	Lock plate				
⚠ ★★	19.	PSF-018	Microswitch				
	20.	YE30S	E-type washer				

11.3 MOTOR ASSEMBLY



Parts List

Mark	No.	Part No.	Description
	1.	PXT-458	Rotor unit
	2.	PSZ30P050FMC	Screw
	3.	PWM-060	Motor control assembly
	4.		E ring (ETW-12)
	10.		Base
	11.		Heat sink
	12.		Shaft holder

12. ADJUSTMENTS

12.1 AUTO-RETURN ADJUSTMENT

1. Turn the auto return adjustment screw full around counter-clockwise.
2. when the auto return adjustment screw is turned back a little at a time clockwise,the tonearm will commence to return to the outer circumference.
3. Stop turning the adjustment screw once the stylus tip is 33mm away from the center shaft.
4. Once the above adjustment procedure has been completed, check that the tonearm returns automatically as designed.

12.2 ARM-ELEVATION ADJUSTMENT

To proceed with the elevation sheet height adjustment, insert the hexagonal wrench (for 3mm) into the hole at the front of the EV sheet and rotate it clockwise to reduce the height and counter-clockwise to increase the height, The height of the stylus tip from the record surface is 7 ±2mm.

12.3 STYLUS LANDING POSITION ADJUSTMENT

1. Place a 30 cm record on the platter.
2. Depress the START/STOP button and start auto play.
   Check the direction and amount of stylus deviation (how many millimeters toward the inside or outside of the record's lead-in groove).
3. Depress the START/STOP button and return the tonearm to the arm clamp.
4. After the platter has stopped rotating, check the screw in the adjustment hole.
5. Rotate the screw with a small screwdriver in accordance to the direction of the deviation observed in step 2.

- Every semi-turn of the screw corrects the stylus descent position by about 18 mm.
- Rotate the screw clockwise if the stylus descends on the outside of the proper position.
- Rotate the screw counterclockwise if the stylus descends on the inside of the proper position.

6. Depress the START/STOP button and check that the adjustment has been performed properly.
   Repeats steps 3 through 6 if the stylus still deviates.

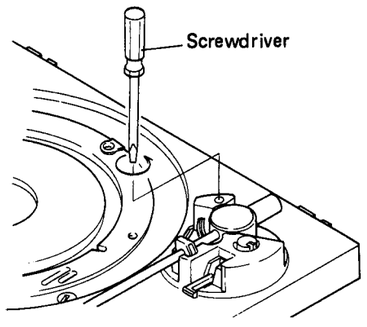


Fig. 12-1 Auto-return adjustment

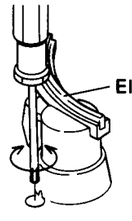


Fig. 12-2 Arm-elevation adjustment

Proceed as follows when the stylus does not descend in the proper position on the record during auto play.
While performing the adjustment, take care not to scratch the record with the stylus.

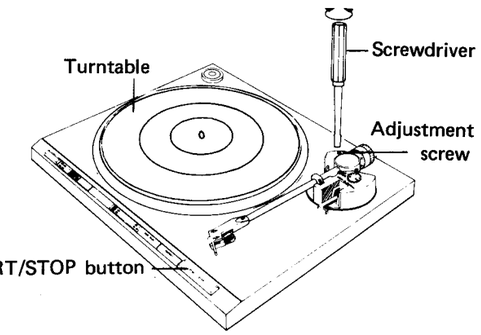


Fig. 12-3 Stylus landing point adjustment

12.4 MOTOR OPERATING POINT ADJUSTMENT

1. Press the START/STOP button to start the turntable.
2. Set the player speed adjustment knob to the mechanical center.
3. Adjust the semi-fixed resistor on the circuit board assembly so that the strobo stops. (Fig. 12-4)

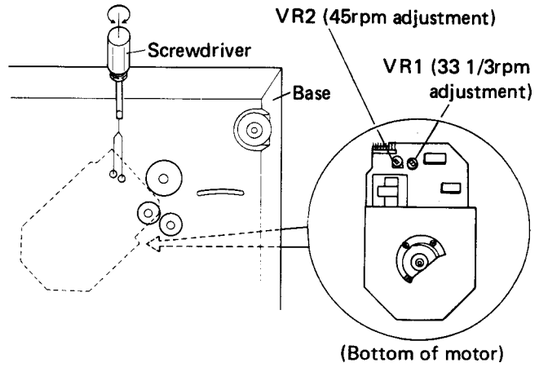


Fig. 12-4 Motor adjustment

12. RÉGLAGE

12.1 RÉGLAGE DU RETOUR AUTOMATIQUE DU BRAS

1. Tourner la vis de réglage du retour automatique du bras à fond dans le sens contraire des aiguilles d'une montre.
2. Lorsque la vis de réglage du retour automatique du bras est tournée d'une petite quantité dans le sens des aiguilles d'une montre, le bras de lecture commence à retourner vers la périphérie du plateau.
3. Arrêter de tourner la vis de réglage lorsque l'extrémité de la pointe de lecture se trouve à 33mm de l'axe central.
4. Lorsque le réglage décrit ci-dessus est terminé, vérifier que le bras de lecture retourne automatiquement de la manière désirée.

12.2 RÉGLAGE DE LA MONTÉE DU BRAS

Pour régler la hauteur de la plaque de montée, introduire une clé hexagonale (de 3mm) dans le trou situé devant la plaque "EV" et la tourner dans le sens des aiguilles d'une montre pour réduire la hauteur, ou dans le sens contraire des aiguilles d'une montre pour augmenter la hauteur. La hauteur de l'extrémité de la pointe de lecture au-dessus de la surface du disque est de 7 ±2mm.

12.3 RÉGLAGE DE LA POSITION DE DESCENTE DE LA POINTE DE LECTURE

1. Placer un disque de 30cm sur le plateau.
2. Appuyer sur la touche START/STOP et débuter la lecture automatique.
   Contrôler la direction et la quantité de déplacement de la pointe de lecture (nombre de millimètres vers l'intérieur ou vers l'extérieur par rapport à l'amorce de sillon du disque).
3. Appuyer sur la touche START/STOP et faire retourner le bras de lecture sur son support.
4. Lorsque le plateau a cessé de tourner, contrôler la vis dans le trou de réglage.
5. Faire tourner la vis à l'aide d'un petit tournevis, en fonction du sens de l'écart observé à l'étape 2.

- Chaque demi-tour de la vis corrige la position de descente de la pointe d'environ 18mm.
- Tourner la vis dans le sens des aiguilles d'une montre si la pointe de lecture descend vers l'extérieur par rapport à la position correcte.
- Tourner la vis dans le sens contraire des aiguilles d'une montre si la pointe de lecture descend vers l'intérieur par rapport à la position correcte.

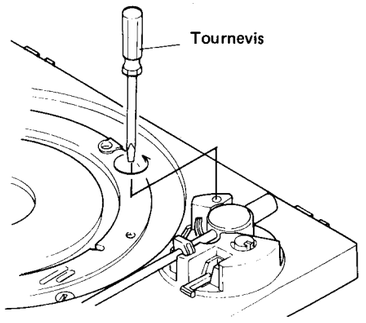


Fig. 12-1 Réglage du retour automatique du bras

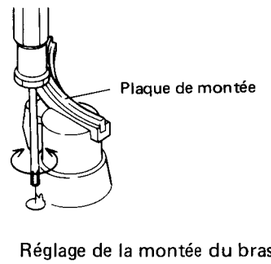


Fig. 12-2 Réglage de la montée du bras

Si la pointe de lecture ne descend pas sur la position correcte lors de la lecture, procéder comme suit.
Lors du réglage, prendte soin de ne pas rayer le disque avec la pointe de lecture.

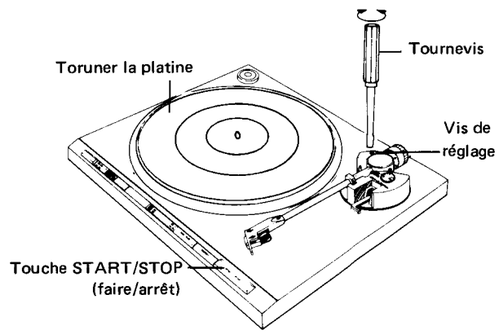


Fig. 12-3 Réglage de la position de descente du bras de lecture

6. Appuyer sur la touche START/STOP et vérifier que le réglage a été réalise correctement. Si la pointe de lecture s'écarte de la position correcte, répéter les étapes 3 à 6.

12.4 RÉGLAGE DU POINT DE FONCTIONNEMENT DU MOTEUR

1. Appuyer sur la touche START/STOP pour faire démarrer le tourne-disque.
2. Régler le bouton de réglage de vitesse de la platine sur la position mécanique centrale.
3. Régler la résistance ajustable de l'assemblée contrôle de moteur à ce que le motif stroboscopique s'arrête. (Fig. 12-4)

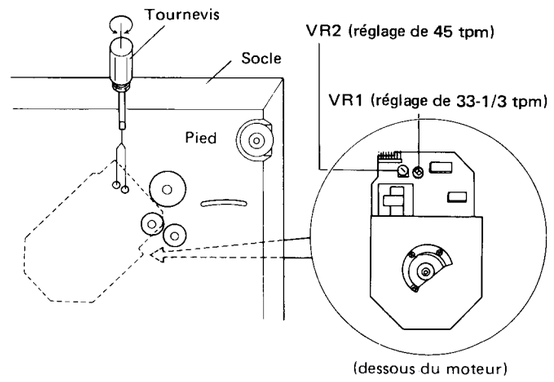


Fig. 12-4 Réglage de la vitesse du moteur

12. AJUSTE

12.1 AJUSTE PARA EL RETORNO AUTOMÁTICO

1. Girar el tornillo de ajuste del retorno automático completamente hacia la izquierda.
2. Cuando el tornillo de ajuste del retorno automático se gira un poco hacia la derecha, el brazo fonocaptor empezará a volver hacia la circunferencia exterior.
3. Dejar de girar el tornillo de ajuste cuando la punta de la aguja esté a 33mm del eje central.
4. Una vez realizado el ajuste arriba mencionado, comprobar que el brazo fonocaptor retorna automáticamente como se ha designado.

12.2 AJUSTE DE LA ELEVACIÓN DEL BRAZO

Para proceder con el ajuste de la altura del dispositivo de elevación, insertar la llave de apriete hexagonal (de 3mm) en el orificio de la parte frontal del dispositivo de elevación y girarla hacia la derecha para reducir la altura y hacia la izquierda para aumentarla. La altura de la punta de la aguja desde la superficie del disco deberá ser de 7 ±2mm.

12.3 AJUSTE DE LA POSICIÓN DE DESCENSO DE LA AGUJA

1. Poner un disco de 30cm en el plato.
2. Presionar el botón de inicio/parada (START/STOP) y iniciar la reproducción automática. Comprobar la dirección y cantidad de desviación de la aguja (los milímetros hacia el interior o exterior del surco inicial del disco).
3. Presionar el botón de inicio/parada (START/STOP) y llevar el brazo a su posición de retén.
4. Una vez el plato ha dejado de girar, comprobar el tornillo del orificio de ajuste.
5. Girar el tornillo con un destornillador pequeño de acuerdo con la dirección de la desviación observada en el paso 2.

- Cada media vuelta del tornillo corrige la posición de descenso de la aguja en unos 18mm.
- Girar el tornillo hacia la derecha si la aguja desciende en el exterior de la posición correcta.
- Girar el tornillo hacia la izquierda si la aguja desciende en el interior de la posición correcta.

6. Presionar el botón de inicio/parada (START/STOP) y comprobar que el ajuste se ha realizado correctamente.
   Repetir los pasos 3 al 6 si la aguja todavia se desvía.

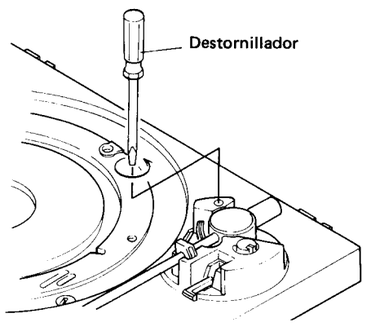


Fig. 12-1 Ajuste del retorno automático

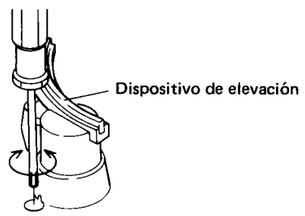


Fig. 12-2 Ajuste de la elevación del brazo

Proceder como se indica a continuación cuando la aguja no desciende en la posición correcta sobre el disco durante la reproducción automática.
Mientras se realiza el ajuste, tener cuidado de no rayar el disco con la aguja.

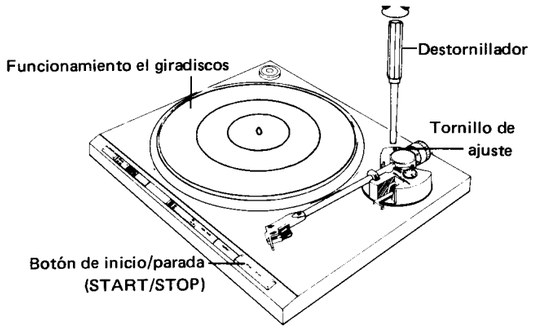


Fig. 12-3 Ajuste del punto de descenso de la aguja

12.4 AJUSTE DEL PUNTO DE OPERACIÓN DEL MOTOR

1. Presionar el botón de inicio/parada (START/STOP) para poner en funcionamiento el giradiscos.
2. Ajustar el mando de ajuste de la velocidad del giradiscos en el centro mecánicamente.
3. Ajustar el resistor semifijo del conjunto de la control del motor de modo que se detenga el estroboscopio. (Fig. 12-4).

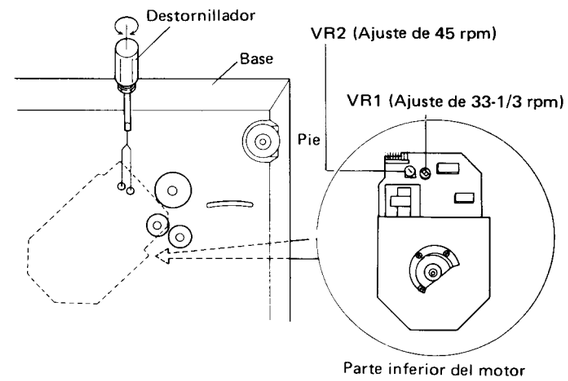


Fig. 12-4 Ajuste de la rotación del motor

ADDITIONAL

Service Manual

PIONEER

ORDER NO.
ART-706-0

STEREO TURNTABLE

PL-5 KCT,R,R/G

PL-420 KU,RF,RF/G

MODEL PL-5 COMES IN FOUR VERSIONS DISTINGUISHED AS FOLLOWS:

Type	Voltage	Remarks
KUT	120V only	U.S.A. model (Without cartridge)
KCT	120V only	Canada model (Without cartridge)
R	110V–120V/220V–240V (Switchable)	General export model
R/G	110V–120V/220V–240V (Switchable)	U.S. military model

MODEL PL-420(which is minor change in design from PL-5) COMES IN THREE VERSIONS DISTINGUISHED AS FOLLOWS:

Type	Voltage	Remarks
KU	120V only	U.S.A. model
RF	110V–120V/220V–240V (Switchable)	General export model (Without dust cover)
RF/G	110V–120V/220V–240V (Switchable)	U.S. military model (Without dust cover)

- This additional service manual is applicable to the PL-5/KCT, R, R/G and PL-420/KU, RF, RF/G.
- The bais performance of the PL-5/KCT, R, R/G and PL-420/KU, RF, RF/G types is the same as the PL-5/KUT type. Please refer to the PL-5/KUT type sercice manual (ART-705) with the exception of this supplements.

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
U.S. PIONEER ELECTRONICS CORPORATION 85 Oxford Drive, Moonachie, New Jersey 07074, U.S.A.
PIONEER ELECTRONIC (EUROPE) N.V. Luithagen-Haven 9, 2030 Antwerp, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia

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1. SPECIFICATIONS

1.1 PL-420/KU

Motor and Turntable

Drive System ..... Direct-drive
Motor ..... DC servo motor
Turntable Platter ..... 310mm diam. aluminum alloy die-cast
Speeds ..... 33-1/3 and 45rpm
Wow and Flutter ..... Less than 0.014% (WRMS)
0.025% (WRMS)
0.035% (DIN)
Values marked with an " * " designate the wow and flutter for motor, and do not include the cartridge or tonearm load.
Signal-to-Noise Ratio ..... More than 78dB (DIN-B)
(with Pioneer cartridge model PC-3MC)

Tonearm

Type ..... Static-balance type, Straight pipe arm
Effective Arm Length 221mm
Overhang 15.5mm
Usable Cartridge Weight ..... 3g (min.) to 8g (max.)

Subfunctions

Full auto mechanism, Anti-skating force control, Stylus pressure direct-readout counterweight, Cueing device, Strobe light, Free stop hinges

Miscellaneous

Power Requirements ..... AC 120V, 60Hz
Power Consumption 9W
Dimensions ..... 420(W) X 108(H) X 367(D) mm
16-1/2(W) X 4-1/4(H) X 14-7/16(D)in.
Weight ..... 5.9kg/13 lb

PC-3MC Specifications

Type ..... Moving coil type
Stylus ..... 0.5 mil diamond (PN-3MC)
Output Voltage ..... 2.5mV (1kHz, 50mm/s, LAT)
Tracking Force ..... 1.7g to 2.3g (proper 2g)
Frequency Response ..... 10 to 32,000Hz
Recommended Load 50kΩ
Weight 3.1g

Accessories

EP Adapter 1
Operating Instructions 1

NOTE:
Specifications and design subject to possible modification without notice, due to improvements.

1.2 PL-5/R

Motor and Turntable

Drive System ..... Direct-drive
Motor ..... DC servo motor
Turntable Platter ..... 310mm diam. aluminum alloy die-cast
Speeds ..... 33-1/3 and 45rpm
Wow and Flutter ..... Less than *0.014% (WRMS)
0.025% (WRMS)
0.035% (DIN)
Values marked with an "*" designate the wow and flutter for motor, and do not include the cartridge or tonearm load.
Signal-to-Noise Ratio ..... More than 78dB (DIN-B)
(with Pioneer cartridge model PC-3MC)

Tonearm

Type ..... Static-balance type, Straight pipe arm
Effective Arm Length 221mm
Overhang 15.5mm
Usable Cartridge Weight ..... 3g (min.) to 8g (max.)

Subfunctions

Full auto machanism, Anti-skating force control, Stylus pressure direct-readout counterweight, Cueing device, Strobe light, Free stop hinges

Miscellaneous

Power Requirements ..... AC110-120/220-240V~
(switchable), 50, 60Hz
Power Consumption 12W
Dimensions ..... 420 (W) x 108 (H) x 367(D)mm
16-1/2(W) x 4-1/4(H) x 14-7/16(D)in.
Weight ..... 5.9kg/13 lb

PC-3MC Specifications

Type ..... Moving coil type
Stylus ..... 0.5mil diamond (PN-3MC)
Output Voltage ..... 2.5mV (1kHz, 50mm/s, LAT)
(1kHz, 50mm/s Peak velocity, LAT)
Tracking Force ..... 1.7g to 2.3g (proper 2g)
Frequency Response ..... 10 to 32,000Hz
Recommended Load 50kΩ
Weight 3.1g

Accessories

EP Adapter 1
Operating Instructions 1

NOTE:
Specifications and design subject to possible modification without notice, due to impromements.

1.3 PL-5/R/G

Motor and Turntable

Drive System . . . . . Direct-drive
Motor . . . . . DC servo motor
Turntable Platter . . . . . 310mm diam. aluminum alloy die-cast
Speeds . . . . . 33-1/3 and 45rpm
Wow and Flutter . . . . . Less than *0.014% (WRMS)
0.025% (WRMS)
0.035% (DIN)

Values marked with an " * " designate the wow and flutter for motor, and do not include the cartridge or tonearm load.

Signal-to-Noise Ratio . . . . . More than 78dB (DIN-B) (with Pioneer cartridge model PC-3MC)

Tonearm

Type . . . . . Static-balance type, Straight pipe arm
Effective Arm Length 221mm
Overhang 15.5mm
Usable Cartridge Weight . . . . . 3g (min.) to 8g (max.)

Subfunctions

Full auto machanism, Anti-skating force control, Stylus pressure direct-readout counterweight, Cueing device, Strobe light, Free stop hinges.

Miscellaneous

Power Requirements . . . . . AC110-120/220-240V ~ (switchable), 50, 60Hz
Power Consumption 12W
Dimensions . . . . . 420 (W) x 108 (H) x 367(D)mm
16-1/2 (W) x 4-1/4 (H) x 14-7/16 (D)in.
Weight . . . . . 5.9kg/13 lb

PC-3MC Specifications

Type . . . . . Moving coil type
Stylus . . . . . 0.5 mil diamond (PN-3MC)
Output Voltage . . . . . 2.5mV (1kHz, 50mm/s, LAT)
Tracking Force . . . . . 1.7g to 2.3g (proper 2g)
Frequency Response . . . . . 10 to 32,000Hz
Recommended Load 50kΩ
Weight 3.1g

Accessories

EP Adapter 1
Operating Instructions 1

NOTE:
Specifications and design subject to possible modification without notice, due to improvements.

1.4 PL-420/RF,RF/G

Motor and Turntable

Drive System . . . . . Direct-drive
Motor . . . . . DC servo motor
Turntable Platter . . . . . 310mm diam. aluminum alloy die-cast
Speeds . . . . . 33-1/3 and 45rpm
Wow and Flutter . . . . . Less than *0.014% (WRMS)
0.025% (WRMS)
0.035% (DIN)

Values marked with an " * " designate the wow and flutter for motor, and do not include the cartridge or tonearm load.

Signal-to-Noise Ratio . . . . . More than 78dB (DIN-B) (with Pioneer cartridge model PC-3MC)

Tonearm

Type . . . . . Static-balance type, Straight pipe arm
Effective Arm Length 221mm
Overhang 15.5mm
Usable Cartridge Weight . . . . . 3g (min.) to 8g (max.)

Subfunctions

Full auto machanism, Anti-skating force control, Stylus pressure direct-readout counterweight, Cueing device, Strobe light.

Miscellaneous

Power Requirements . . . . . AC110-120/220-240V ~ (switchable), 50, 60Hz
Power Consumption 12W
Dimensions . . . . . 420 (W) x 105 (H) x 361(D)mm
16-1/2 (W) x 4-1/8 (H) x 14-3/16(D)in.
Weight . . . . . .5.3kg/11 lb 10 oz

PC-3MC Specifications

Type . . . . . Moving coil type
Stylus . . . . . 0.5 mil diamond (PN-3MC)
Output Voltage . . . . . 2.5mV (1kHz, 50mm/s, LAT)
Tracking Force . . . . . 1.7g to 2.3g (proper 2g)
Frequency Response . . . . . 10 to 32,000Hz
Recommended Load 50kΩ
Weight 3.1g

Accessories

EP Adapter 1
Operating Instructions 1

NOTE:
Specifications and design subject to possible modification without notice, due to improvements.

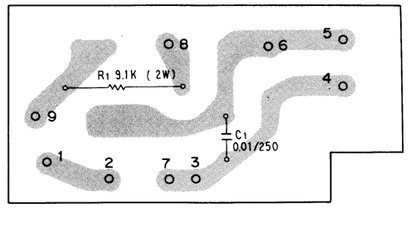
2. CONTRAST OF MISCELLANEOUS PARTS

NOTES:
- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your Parts Stock Control, the fast moving items are indicated with the symbols ★★ and ★ .*
  ★★ : GENERALLY MOVES FASTER THAN ★
  This classification shall be adjusted by each distributor because it depends on model No., temperature, humidity, etc.

Mark	Symbol & Description	Parts No. PL-5/KUT	PL-5/KCT	PL-5/R	PL-5/R/G	PL-420/KU	PL-420/RF	PL-420/RF/G
	Panel	PNX-347	PNX-347	PNX-320	PNX-320	PNX-350	PNX-328	PNX-328
	Front name plate (B)	PAM-075	PAM-075	PAM-075	PAM-075	PAM-081	PAM-081	PAM-081
	Front name plate (C)	PAM-076	PAM-076	PAM-076	PAM-076	PAM-082	PAM-082	PAM-082
	S/S knob (A) unit	PAD-085	PAD-085	PAD-085	PAD-085	. . . . .	. . . . .	. . . . .
	S/S knob (B) unit	. . . . .	. . . . .	. . . . .	. . . . .	PAD-089	PAD-089	PAD-089
	R knob (A) unit	PAD-086	PAD-086	PAD-086	PAD-086	. . . . .	. . . . .	. . . . .
	R knob (B) unit	. . . . .	. . . . .	. . . . .	. . . . .	PAD-091	PAD-091	PAD-091
	SE knob (A) unit	PAD-087	PAD-087	PAD-087	PAD-087	. . . . .	. . . . .	. . . . .
	SE knob (B) unit	. . . . .	. . . . .	. . . . .	. . . . .	PAD-092	PAD-092	PAD-092
	SP knob (A) unit	PAD-088	PAD-088	PAD-088	PAD-088	. . . . .	. . . . .	. . . . .
	SP knob (B) unit	. . . . .	. . . . .	. . . . .	. . . . .	PAD-090	PAD-090	PAD-090
	Adjustment knob	PAC-086	PAC-086	PAC-086	PAC-086	PAC-092	PAC-092	PAC-092
	Rubber mat assembly	PEA-057	PEA-058	PEA-058	PEA-058	PEA-057	PEA-058	PEA-058
	Cartridge assembly	. . . . .	. . . . .	PPB-938	PPB-938	PPB-938	PPB-938	PPB-938
	AS knob	PAC-100	PAC-100	PAC-100	PAC-100	PAC-101	PAC-101	PAC-101
	EV lever unit	PNX-336	PNX-336	PNX-336	PNX-336	PNX-344	PNX-344	PNX-344
⚠ ★★	Microswitch	PSF-018	PSF-018	PSF-020	PSF-020	PSF-018	PSF-020	PSF-020
⚠ ★	Power transformer (120V)	PTT-119	PTT-139	. . . . .	. . . . .	PTT-119	. . . . .	. . . . .
⚠ ★	Power transformer (110–120V/220–240V)	. . . . .	. . . . .	PTT-121	PTT-121	. . . . .	PTT-121	PTT-121
⚠	Power cord	PDG-023	PDG-023	PDG-028	PDG-028	PDG-023	PDG-028	PDG-028
⚠ ★★	Line voltage selector	. . . . .	. . . . .	PSB-011	PSB-011	. . . . .	PSB-011	PSB-011
★★	Dust cover	PNV-034	PNV-034	PNV-034	PNV-034	PNV-040	. . . . .	. . . . .
★	Hinge assembly	PXB-155	PXB-155	PXB-155	PXB-155	PXB-155	. . . . .	. . . . .
	Operating instructions	PRB-189	PRB-189	PRE-003	PRB-197	PRB-203	PRB-204	PRB-204
	Protector (L)	PHA-127	PHA-127	PHA-127	PHA-127	PHA-132	PHA-132	PHA-132
	Protector (R)	PHA-128	PHA-128	PHA-128	PHA-128	PHA-133	PHA-133	PHA-133
	Top Protector	. . . . .	. . . . .	. . . . .	PHC-049	. . . . .	. . . . .	PHC-049
	Packing case	PHG-439	PHG-449	PHG-464	PHG-450	PHG-445	PHG-467	PHG-456
	PU cord	PDE-064	PDB-044	PDE-044	PDE-044	PDE-064	PDE-044	PDE-044
	Power supply assembly	XWR-006	XWR-006	XWR-018	XWR-018	XWR-006	XWR-018	XWR-018

3. POWER SUPPLY ASSEMBLY (XWP-018)

■ P.C. BOARD PATTERN



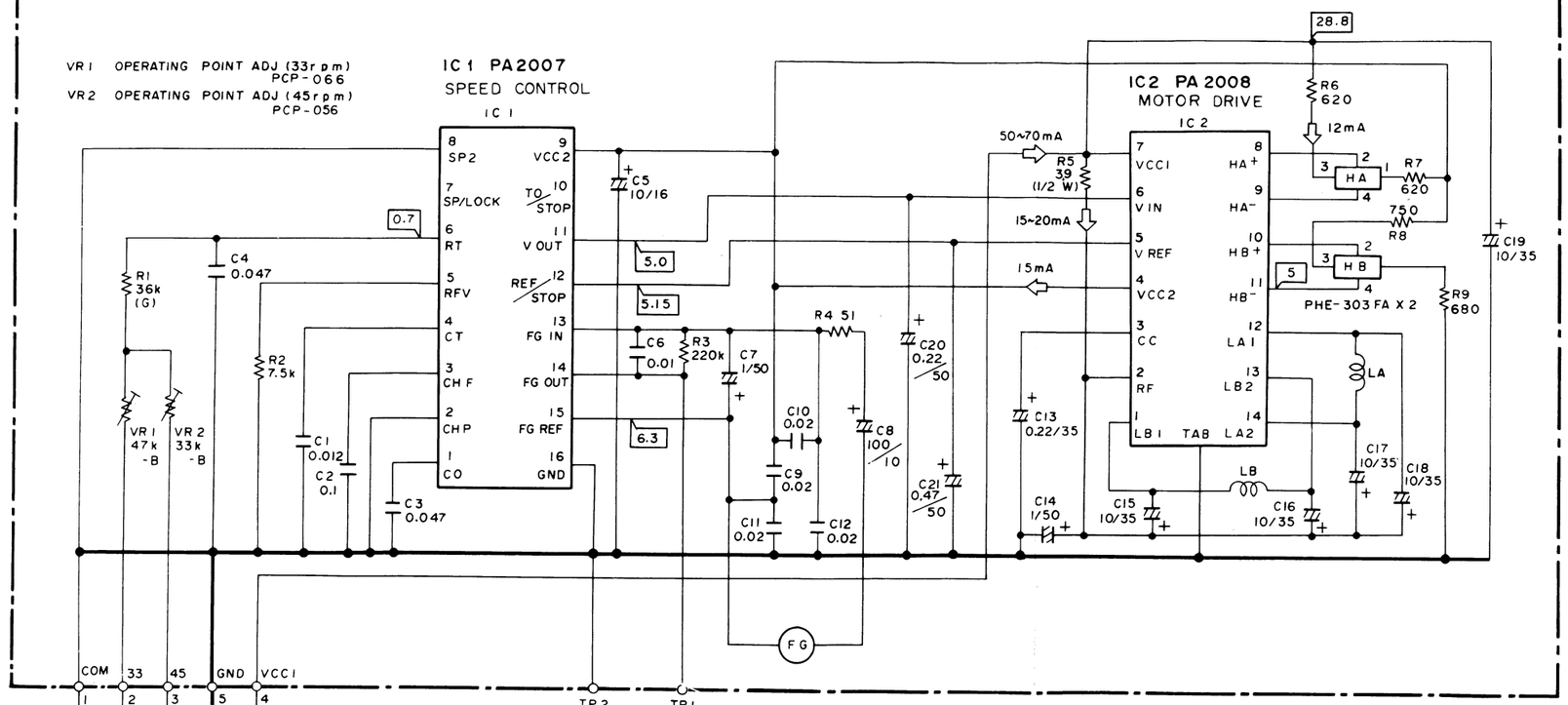
■ PARTS LIST

Mark	Parts No.	Symbol & Description
⚠	PCL-040	C1
⚠	RS2PF912J	R1

4. SCHEMATIC DIAGRAM

4.1 PL-5/KCT

NOTE:
The indicated semiconductors are representative ones only. Other alternative semiconductors may be used and are listed in the parts list.



1. RESISTORS:
   Indicated in Ω, ¼W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ±10% (M) : ±20% tolerance

2. CAPACITORS:
   Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
   Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
   ▭ : DC voltage (V) at no input signal
   ⇦ mA : DC current at no input signal

4. OTHERS:
   ⊘ : Adjusting point.
   The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

   This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

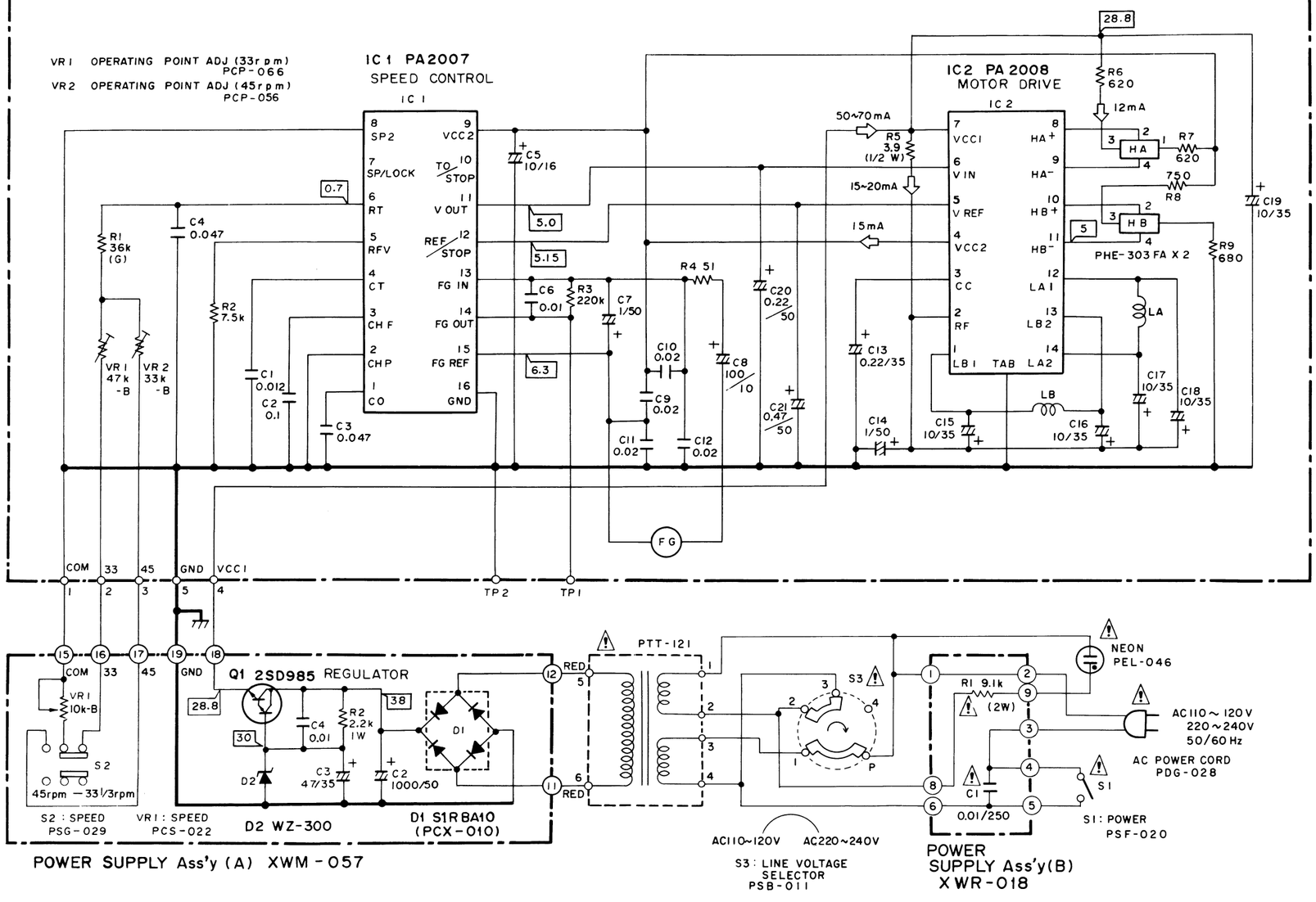
SWITCHES:

S1 : POWER	ON — OFF
S2 : SPEED	33 1/3 rpm — 45rpm

The underlined indicates the switch position.

4.2 PL-5/R,R/G, PL-420/RF,RF/G

NOTE:
The indicated semiconductors are representative ones only. Other alternative semiconductors may be used and are listed in the parts list.



1. RESISTORS:
Indicated in Ω, ¼W, ±5% tolerance unless otherwise noted k : kΩ, M : MΩ, (F) : ±1%, (G) : ±2%, (K) : ±**10%** (M) : ± **20%** tolerance

2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p : pF
Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:
▭ : DC voltage (V) at no input signal
⇦mA : DC current at no input signal

4. OTHERS:
⊘ : Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

SWITCHES:

S1 : POWER ON — OFF
S2 : SPEED 33 1/3rpm — 45rpm
S3 : LINE VOLTAGE SELECTOR
AC110~120V — AC220~240V

The underlined indicates the switch position.